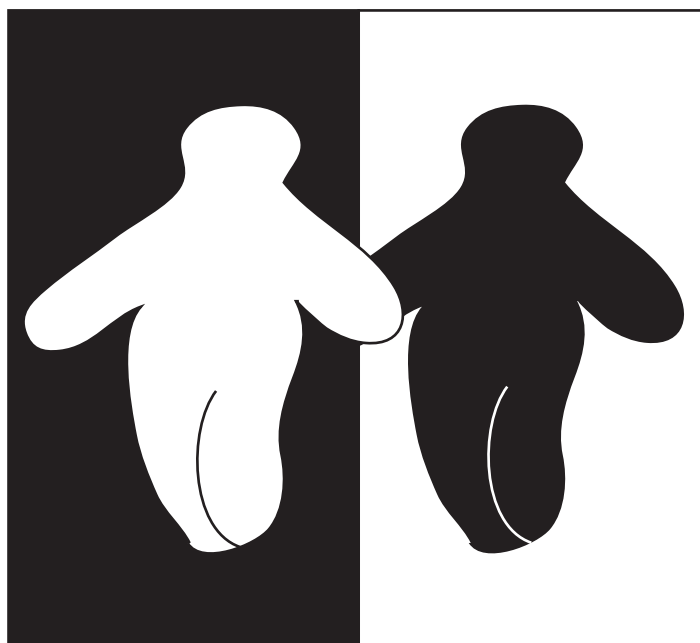


A social network cares



A study on the influence of the social network on the application for health care services

Thesis Master in Health Economics,
Policy and Law

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Voorwoord

In de Rapportage ouderen 2004 werd geconstateerd dat ongeveer 30.000 ouderen ernstige gezondheidsproblemen hebben, maar geen gebruik maken van zorgvoorzieningen. Ook uit ander onderzoek blijkt dat mensen met beperkingen behoefte hebben aan allerlei voorzieningen, die zij niet hebben. Een belangrijke reden is een gebrek aan kennis: mensen weten niet hoe ze voorzieningen moeten regelen of waar ze hierover informatie kunnen verzamelen. Het is de vraag hoe zij dan aan deze voorzieningen komen. Het lijkt waarschijnlijk dat mensen dan een beroep doen op hun sociale netwerk, bijvoorbeeld kinderen. Er is, voor zover bekend, slechts weinig onderzoek gedaan naar deze bemiddelende rol van het sociale netwerk. Onderzoek naar het sociale netwerk en zorgverlening richt zich meestal op de vraag hoeveel informele zorg het netwerk verleent en of zij dan de thuiszorg aanvult of vervangt.

Het Sociaal en Cultureel Planbureau (SCP) is verheugd dat Renske dit onderwerp heeft willen onderzoeken. Dat onderzoek heeft zij voor een heel groot deel zelfstandig verricht: het SCP leverde het globale idee en stelde enkele databestanden ter beschikking die 'mogelijk een licht op dit onderwerp zouden kunnen werpen'. Deze databestanden waren niet opgezet voor dit specifieke onderzoek naar de rol van het netwerk bij het realiseren van zorg. Het betrof algemeen onderzoek naar de leefsituatie en het voorzieningengebruik van de Nederlandse bevolking en naar knelpunten in het leven van mensen met lichamelijke beperkingen. Dit betekende 'roeien met de riemen die je hebt': de vragen waar het onderzoek eigenlijk om draaide zijn niet aan de respondenten gesteld. Vaak moest met allerlei omwegen en door het combineren van diverse gegevens geprobeerd worden om antwoord op de onderzoeksvragen te geven. Het is aan het doorzettingsvermogen en de vindingrijkheid van Renske te danken dat dit ook gelukt is.

Haar onderzoek maakt duidelijk dat het netwerk van belang is bij het aanvragen van voorzieningen en dat er bijzondere aandacht nodig is voor mensen die geen netwerk hebben waar ze een beroep op kunnen doen.

Voor het SCP geldt dat een stage geslaagd is als niet alleen de stagiaire het gevoel heeft iets geleerd te hebben, maar als het onderzoek ook bruikbare resultaten oplevert. Dat Renske uitgebreid geciteerd wordt in de Rapportage gehandicapten 2007 die binnenkort verschijnt, betekent dat het SCP deze stage als een succes beschouwt!

Mirjam de Klerk,
Stage-begeleider SCP

In dit voorwoord wil ik kort de personen bedanken die geholpen hebben bij de totstandkoming van deze scriptie. Allereerst geldt dit voor het Sociaal en Cultureel Planbureau, en in het bijzonder voor de onderzoeksgroep Zorg, voor de mogelijkheid om aan mijn afstudeeropdracht te werken tijdens een stage bij hen, en Mirjam de Klerk voor haar goede begeleiding tijdens deze stage.

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Als laatste gaat mijn dank uit naar mijn sociale netwerk, voor alle emotionele, praktische, waardeschattende en informatieve steun.

Renske Hoefman

Summary

Health care services can enable persons with a physical disability to live independently. Research showed that not all persons with a need for these services, actually used them. Our study investigated whether persons may not apply for these services, because submitting an application is difficult for them. Whether the social network of physically disabled persons enables persons to submit an application has also been studied. The research questions used to study these subjects are:

-‘To what degree is the application for health care services a bottleneck for physically disabled persons?’ and;

-‘Does the social network exert influence on the application for health care services of physically disabled persons?’

These research questions have been studied with two data sets (Amenities and Services Utilization Survey 2003 and Amenities and Services Utilization Survey for the Physically Disabled 2004) of the Social and Cultural Planning Office of the Netherlands (Sociaal en Cultureel Planbureau).

The last research question has been studied in two different ways, because of shortcomings in the secondary data. The first approach investigated whether physically disabled persons received support of their social network when submitting an application, if so, from whom and why. The second approach used the Andersen model (1995) to study the relation between the presence of a social network and the application for professional home care and housing adaptations. The use of professional home care has also been studied due to shortcomings in the secondary data. In addition, the second approach investigated which groups of variables of the Andersen model explained the variance in the utilization of professional home care and the application for housing adaptations most. Moreover, it has been investigated whether having problems with submitting an application is directly related to the actual use of and application for professional home care and housing adaptations.

Both research questions have been examined with bivariate analysis and multivariate logistic analysis. Our results showed that submitting an application for health care services was a bottleneck for many physically disabled persons. Often, persons were not well informed on the application process, especially elderly persons and those with a low educational level did not search information. The majority of physically disabled persons, in particular middle aged persons, elderly, women, those with a low educational level and those with a low income, did not use the internet to search information. In addition, submitting an application could be a bottleneck, because many physically disabled people, especially those with a moderate disability, shied away from applying for health care services. Moreover, some had difficulties with or could not even perform administrative activities needed to submit an application. This particularly applied to those with a severe physical disability and those with a low educational level.

The first approach showed that a social network positively exerted influence on the application for health care services, because many people with a physical disability received support of their social network when submitting an application. Receiving support was associated with severe physical disability, old age and a low educational level. Persons, in particular elderly and single persons, mainly received this support, because they did not know how or where to apply for health care services. Often, a child or parent lent support. This especially related to young adults, elderly, women, single persons, and those who have a ‘stronger’ social network. A partner also lent support, in particular to the ones who did not receive support of a child or parent. Not all physically disabled persons could rely on their social network for support. This especially applied to persons younger than 75 years and singles.

Next, our results showed that not all persons who want to use professional home care or housing adaptations submitted an application for this. Persons who applied for professional home care in particular are those with a severe physical. Especially elderly and those who do not shy away from submitting an application applied for housing adaptations. Associated with the utilization of professional home care were severe physical disability, old age, gender, low income, not having a partner and not shying away from submitting an application.

The second approach also showed that a social network positively exerted influence on the use of professional home care and the application for housing adaptations. More persons with a physical disability who often have contact with their family used professional home care. Moreover, more single persons who live near by their family applied for housing adaptations than others.

In addition, our results indicated that predisposing characteristics and to a less degree enabling resources explained the use of professional home care and the application for housing adaptations

most, even more than need. Therefore, next research on the use of and application for health care services should include social network characteristics.

To reduce the inequality in the utilization of professional home care and the application for housing adaptations, information on health care services and the application process should be actively distributed in different ways to both potential users of these services and to their social network. Further, local governments have to lend support to persons who cannot submit an application themselves and lack social support. Lastly, it is desirable to aim these policies at specific groups without many resources, such as persons with a low educational level or single persons.

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1. Introduction

1.1 Social support

Just running up the stairs because you have forgotten your wallet or taking a shower to refresh yourself after a day at the office. These activities seem so simple, but for persons who have a physical disability like being partially sighted or only able to move in a wheelchair they can be a huge challenge.

Health care services are of vital importance for elderly people who often have physical disabilities in order to enable them to live (longer) in their own houses (Van Gameren et al. 2005). Examples of these services are professional household help in e.g. vacuuming or cleaning the windows and aids such as a seat in the shower. This help and these aids may enable persons with a physical disability to live independently.

Not all persons having difficulty with daily activities (adl&hdl-activities) do receive health care services, although they say they need this (Gorter 1989; Hortulanus et al. 2003; Van Campen & De Klerk 2004; Pommet et al. 2007). Especially people who do not have many resources, like a low income, are at risk of this (Smits et al. 2002).

Lack of knowledge (Gorter 1989; De Klerk & Huijsman 1995; Van Campen & De Klerk 2004) and inability to express a need for health care services in a demand (Van Bilsen et al. 2004) may be reasons for insufficient or non-use of health care services.

It is possible that some of the persons who apply for health care services are able to do so, because they receive support of their acquaintances, also *social support*. These acquaintances are called the *social network*.

The social network can lend different kinds of support, such as informing persons on health care services or actually providing the needed care. The latter is called *informal care*. The influence of informal care on the utilization of health care services has frequently been studied (for example Hortulanus et al. 2003, Geerlings, Broese van Groenou & Deeg 2004), but the results are ambiguous.

On the one side, informal care can impede the use of formal care, because an informal caregiver can be a contra-indication for the receipt of formal care. For example, due to the care provided by the informal caregiver professional care is not needed. This is called the *substitution-effect*. This effect has been observed in several studies. A study among American elderly showed that persons receiving informal care of their children used less formal care than others (Van Houtven & Norton 2004). In addition, Dutch elderly who used less informal care made more appeal to professional home care compared to others (Kempen & Van Sonderen 1996).

On the other hand, informal care can facilitate the utilization of formal care, the so-called *bridging hypothesis*. Geerlings, Broese van Groenou & Deeg (2004) found that persons with health problems who received informal care used more professional home care than others did. An informal caregiver may put someone in touch with a health professional (Geerlings, Broese van Groenou & Deeg 2004). Informal caregivers may also urge persons to use professional health care services (Hortulanus et al. 2003). Broese van Groenou (2004) found that persons used both informal and formal care: when children provided informal care to their parents, they usually did this in cooperation with professional caregivers.

1.2 Research questions

Despite the ambiguity on the influence of informal care on the use of health care services, this subject will not be the focus of our study. The focus will be on the complete social network, whether they provide informal care or not. Not only informal caregivers will be able to observe problems or discomfort and support or urge persons to receive care, but probably also other network members who, for example only visit their mother. The role of these social network members has been studied less frequently. From the available studies, it appears that the influence of these social network members on the utilization of health care services is also not precisely clear. Social relationships can both facilitate and impede the use of health care services (Andersen 1995).

A study by Deeg & Smits (1995) showed that social support increased the chance elderly women would use professional health care services. In contrast, Kemper (1992) found that disabled elderly

who have at least one child or a spouse used formal care less often than those without these family members. Others found that social networks do not have any or only a very small effect on health care services use (Kempen & Van Sonderen 1996).

Many of the studies on the *utilization* of professional care focused on elderly (for example Kempen & Suurmeijer 1989, Broese van Groenou 2004 and Van Houtven & Norton 2004) or on people in specific regions, for example the Longitudinal Aging Study Amsterdam (LASA, see Schuijt-Lucassen & Broese van Groenou 2006).

Our study will include Dutch adults with a moderate or severe physical disability. They will, in contrast to those with none or a slight physical disability, probably need professional help such as household help. Not only elderly will be included, but all adults with a physical disability, because they may all need professional care.

In our study the focus will be on *health care services*. Persons will probably have more difficulty finding the way to 'care' than to 'cure' services, because the need for direct use of 'cure' services is often larger than for 'care' services and persons are often more familiar with 'cure' services (most people know the way to their own general practitioner, but 'care' services have mostly not been used before). And others will probably be more inclined to arrange 'cure' than 'care' services considering the kind of situation (for example in case of an accident calling an ambulance).

In this study two types of health care services will be investigated; *professional home care* and *housing adaptations*.

The former will be used, because persons with health problems relatively often use this help (Hortulanus et al. 2003). In 2004 approximately 600,000 Dutch adults used professional home care (De Groot 2007). Utilization of professional home care is connected to the severity of the disability. Ten per cent of the elderly older than 55 years received professional home care, and more than half of the severely physically disabled elderly (Van Campen & De Klerk 2004).

Housing adaptations will be studied, because people with a physical disability also relatively often use them. In 2004 more than 13.700 housing adaptations have been granted based on the Services for the Disabled Act (Wet voorzieningen gehandicapten, Wvg) (Wapstra, Quist & Vreugde 2005).

Professional home care is financed by the Exceptional Medical Expenses Act (Algemene Wet Bijzondere Ziektekosten, AWBZ). Persons can use AWBZ-care if a positive indication has been obtained of a needs assessment agency (Regionaal Indicatie Orgaan, RIO), nowadays the Centrum Indicatiestelling Zorg (CIZ)¹. Housing adaptations can be granted on basis of the Services for the Disabled Act (Wet voorzieningen gehandicapten, Wvg). Domestic care of the AWBZ and housing adaptations of the Wvg were transferred to the Social Support Act after January 1st 2007 (Wet Maatschappelijke Ondersteuning, WMO).²

Most of the research on the influence of the social network concentrated on the actual *utilization* of health care services (for example Deeg & Smits 1995, Pohl, Collins & Given 1995 and Hortulanus et al. 2003), only few on *submitting an application* for these services (for example Kempen & Suurmeijer 1989 and Portrait 2000).

In our study *applying for* professional home care and housing adaptations will be studied instead of the *utilization* of these services, because the influence of the social network can be better studied when focusing on the application for health care services. Before persons actually use health care services a process of earlier 'steps' and influences, like assessment by the RIO or supply restrictions on health care services, has preceded. These effects can disturb the influence of the social network. These steps are less present in the application for health care services and therefore the influence of the social network will be less affected.

The central research question in our study is:

Does the social network exert influence on the application for health care services of physically disabled persons? '

¹ When the data used in this study has been collected the care indications were distributed by the Regionaal Indicatie Orgaan (RIO).

² The data used in this study was collected before January 1st 2007

This question will be studied in two ways, because using two approaches will lead to a more satisfying answer.

The first approach is a descriptive one. It will try to answer whether people with a physical disability receive support of their social network with applying for health care services, if so, from whom, and why. This first approach will be used, because before the influence of the social network on the application for health care services (second approach) can be studied it is needed to consider whether the social network lend support when submitting an application at all.

The second approach will try to discover whether the presence of specific social network members positively influences the application for professional home care and housing adaptations in particular. Nevertheless, because of a small number of respondents indicating to have applied for professional home care, the use of professional home care will also be studied.

Before answering the central research question, the problems people face when applying for health care services will be studied. This is of importance in our study, because if applying for health care services is difficult for persons, members of their social network may exert influence on submitting an application by lending them support.

Whether someone is able to apply for health care services will be derived from his or her ability to search information. A lack of knowledge of (applying for) health care services can make the application for health care services more difficult or maybe even hinder it. In addition, the use of internet will be studied, as a source of this information. Internet is becoming an important source of information. Nearly 80% of Dutch households have access to internet (CBS 2006).

Besides searching information attention will also be paid to the ability to perform simple administrative work. This skill is needed to apply for health care services, for example by filling in an application form.

Lastly, whether persons shy away from submitting an application will be investigated.

The first and preliminary research question is:

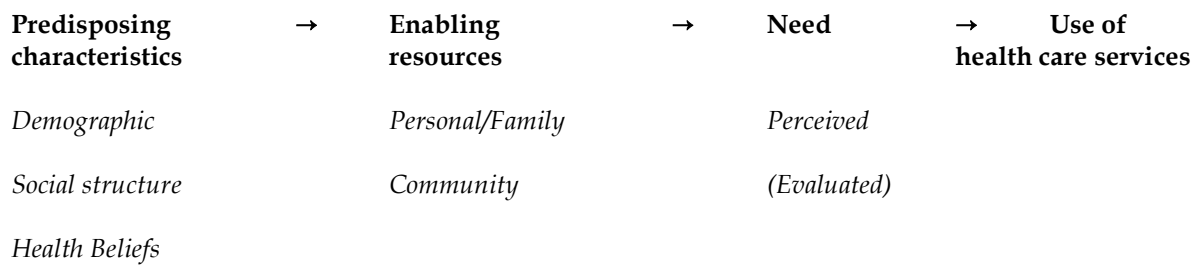
'To what degree is the application for health care services a bottleneck for physically disabled persons? '

1.3 Theoretical framework

The Behavioral Model of Health Services Use developed by Andersen in the 1960s (Andersen 1995) will be used as a framework to study the relationship between the social network and the application for professional home care or housing adaptations of physically disabled persons (second approach of second research question). This model focuses on individual determinants of health care use. An expanded model of Andersen and Newman, developed in the 1970s, also includes societal determinants and health service system features to determine the utilization of health services (Aday & Awe 1997). To analyse the effect of the social network on the application for health care services individual determinants will probably be most relevant and therefore the 'original' 1960s model will be used in our study.

The use of health care services is 'a function of people's predisposition to use services, factors which enable or impede use, and their need for care' (Andersen 1995:1). The Behavioral Model of Health Services Use is shown in Figure 1.

Figure 1 The Behavioral Model of Health Services Use



Need is one of the factors that can explain the utilization of health care services. Need consists of subjective need (perceived by ‘patients’) and professional defined need, also called evaluated need (Andersen 1995). Perceived need can be used to understand care-seeking behaviour of persons and their adherence to the medical regime. The kind and the amount of treatment after a person has contacted a medical care provider are most appropriately measured by evaluated need (Andersen 1995).

Personal/family and community are both *enabling resources*. The former concerns the means and knowledge needed for using health care services. The latter includes the availability of facilities and personnel on behalf of care (Andersen 1995).

Social relations, which are the main subject of our study, can be considered as an enabling resource (Andersen 1995).

Predisposing characteristics consist of demographic characteristics, social structure characteristics and health beliefs. Demographic characteristics represent biological imperatives, such as age, which suggest the likelihood of the need for health care services use. Social structure consists of different factors, such as education, that determine a person’s status in the community, his or her ability to cope with problems, the amount of resources available to deal with these problems and the condition of the physical environment. Health beliefs include attitudes, values and knowledge on health en health care services (Andersen 1995).

In the next chapter it will be discussed how the original Andersen model has been adapted for our study.

The theoretical background of studies focusing on the relationship between social relations and their influence on health is composed of a *mix of theoretical approaches*, including sociology, psychoanalysis, anthropology and epidemiology (Berkman et al. 2000).

Durkheim, a sociologist, has made an important contribution to this scientific knowledge by his work on the relation between *social integration and mortality*. This also applies to the *theory of attachment* formulated by psychoanalyst Bowlby. The central view of this theory is that there is a universal human need to form close affectional bonds. The knowledge on social relations has been expanded by the *social network theory* during the 1950s. Anthropologists Barnes and Bott have developed this theory to focus on social ties that cut across traditional categories, like kin groups, tribes or villages, because these categories could not fully explain behaviour of persons and groups. Social network theory focuses on the structure and composition of the social network and the contents or resources that are exchanged in the network (Berkman et al. 2000).

Two waves of research can be distinguished within the social network theory. The first is the so-called *network approach*, which focuses on objective aspects to measure social networks, such as the size and the presence of persons who can give support (quantitative characteristics). The second wave has often been used in the tradition of ‘loneliness research’, the *deficit approach*. Qualitative characteristics, which concern the subjective evaluation of a social network, measure social networks in this approach (Hortulanus et al. 2003).

In our study the network approach will be used, because of reasons explained in the method section.

Three main approaches of the network approach can be distinguished, all highlighting different aspects of social networks: the *social-integration approach*, the *social-network approach* and the *social-support approach* (Hortulanus et al. 2003).

The size of the social network and the type of relationships are the main elements of the social-integration approach. The central question of this approach is how well a person has been integrated in a community. The measures used here are for example household size and membership of sports clubs, which are considered as channels through which social integration can occur (Hortulanus et al. 2003).

The social-network approach emphasizes the formal structure of the social network. This approach uses characteristics of a social network, for example the density (do people know each other) or the heterogeneity (for example, consists the network of members of the same family or of the same gender) of the network, to measure the social embedding of a person in a social network (Hortulanus et al. 2003).

The social-support approach focuses on the quality of the relationships in the social network to distinguish persons that can lend support. The quality of relationships depends on its function, especially the amount and the kind of support the network produces. This analysis does not include the complete social network, but only the relationships that may produce social support (Hortulanus et al. 2003). Social support can exert influence on someone's health. Social support can differ in type, frequency, intensity and extent. Four different kinds can be distinguished: *emotional*, *instrumental*, *appraisal* and *informational support*. Emotional support concerns the amount of love, care, sympathy and understanding received of others. Instrumental support includes providing practical support, for example getting groceries or in terms of this study filling in an application form. Appraisal support is concerned with helping others to make a decision, for example encouraging someone to use professional home care, giving feedback or helping to decide which course of action to take. Informational support consists of giving advice or providing information, for example on housing adaptations (Berkman et al. 2000).

Although Berkman et al. (2000) focused on the relation between social support and *health*, these types of social support can probably also be applied to the *application for health care services*, because applying for (and using) health services can be seen as a way to improve ones health.

The social-support approach will be most suitable to study the relation between a social network and applying for health care services, because it can be distinguished whether someone has members in his or her network who are able to support them. In our study we also focus on the presence of social network members who are able to support persons, because we expect that these persons will positively influence the application for health care services.

The social-integration and the social-network approach are not suitable, because they both focus on other subjects than our study: measuring social integration and the embedding of a person in his or her social network.

1.4 Outline of our study

In the next chapter the methods used in our study will be described.

The results will be presented in chapter 3, 4 and 5. The degree to which applying for health care services is a problem for people with a physical disability will be discussed in chapter 3 (research question 1). Whether physical disabled persons receive support of their social network when applying for health care services will be described in chapter 4 (research question 2, first approach). In the following chapter (5) the direct effect of the social network on applying for professional home care or housing adaptations by physically disabled persons will be reported (research question 2, second approach).

The conclusions will be presented in chapter 6. Our results will be compared to other studies in this chapter. In the following two chapters (7, 8) the discussion and the policy recommendations will be reported.

2. Methods

2.1 Data sets

In our study two data sets of the Social and Cultural Planning Office of the Netherlands (SCP, Sociaal en Cultureel Planbureau) have been used:

- the Amenities and Services Utilization Survey 2003 (Aanvullend Voorzieningen Onderzoek 2003, AVO'03) and;
- the Amenities and Services Utilization Survey for the Physically Disabled 2004 (Aanvullend Voorzieningen Onderzoek Gehandicapten 2004, AVO gh'04).

The AVO'03 survey concerns the use of social and cultural services. The survey data of the AVO'03 have been gathered by means of both oral and written interviews. The Dutch non-institutionalized population aged six years or older has been included in the AVO'03. A simple random sample of addresses known by TPG-post (nowadays TNT Post) has been used to select these respondents. The net response of the AVO'03 (data collection from September 2003 until March 2004) is 60% (13.776 persons). The survey itself is an explanation for this non-response, the AVO is a very intensive questionnaire demanding a lot of the respondents. The non-response is higher among persons aged 18-34 years, those living in urban conglomerations and in large cities. The results have been weighted to compensate for the higher non-response in these groups (De Klerk & De Boer 2005). The weight factor has been based on gender, age, marital status and urbanization level.

The AVO'04 gh is a supplement to the AVO'03. It concerns subjects related to having a physical disability, such as adaptations of the workplace or the costs of using 'special' transportation. In the AVO gh'04 data have been collected by means of oral interviews. Only persons with at least a moderate physical disability have been included in the AVO gh.

The respondents of the AVO gh'04 have randomly been selected based on several questions on physical disability of the AVO'03 and the Gfk script-panel³. From those who have been selected 72% (1284 persons) have participated in the AVO gh'04. Reasons for the non-response are not willing to participate in the survey or not admitting that physical disabilities are present. Background characteristics (gender and living area) of the persons in the response- and non-response group are practically the same, with the exception of age. The net response contains somewhat less persons aged 18-35 year than the initial sample. A weight factor, based on age, gender and physical disability, has been used to compensate for the non-response in the analyses.

In our study persons aged eighteen years or older with a moderate or severe physical disability have been included. In the AVO'03 1570 and in the AVO Gh'04 618 adults with a moderate or severe physical disability have participated.

2.2 Measurement

Both the dependent and the independent variables which have been used to investigate the research questions of our study have been based on survey questions of the AVO'03 and the AVO gh'04 (presented in Appendix A). The answering categories of these survey questions have been adjusted in order to perform statistical analyses. The answering categories of the independent variables will be presented in paragraphs § 2.2.1 and § 2.2.2., the answering categories of the dependent variables in Table 1.

³The regular AVO did not have enough respondents with physical disabilities, therefore some respondents of the Gfk script-panel have also been asked to participate in the AVO-Gh'04. The Gfk script-panel (household panel concerning different subjects) is a representative sample of the population.

Table 1 Answering categories dependent variables

Survey question	Topic survey question	Initial answering categories survey question	Answering categories bivariate analysis	Answering categories logistic regression
Question M1e AVO Gh'04	Always searching information on health care services which are related to a person's physical disability	1-totally agree 2-agree 3-agree nor disagree 4-disagree 5-totally disagree	-agree (incl. 1 & 2) -agree nor disagree -disagree (incl. 4 & 5)	-yes, searches (incl. 1 & 2) -no, does not search (incl. 3 & 4 & 5)
Question B8 AVO'03	Using internet	1- daily or several times a week 2- once a week or several times a month 3- once a month or less 4- never	-daily or several times a week -once a week or several times a month -never or rarely (incl. 3 & 4)	-yes, uses internet (incl. 1 & 2) -no, (almost) never uses internet (incl. 3 & 4)
Question M1k AVO Gh'04	Shying away from using new services or help	1-totally agree 2-agree 3-agree nor disagree 4-disagree 5-totally disagree	-agree (incl. 1 & 2) -agree nor disagree -disagree (incl. 4 & 5)	-yes, shies away (incl. 1 & 2) -no, does not shy away (incl. 3 & 4 & 5)
Question N11i AVO'03	Performing simple administrative work	1- without difficulties 2-with difficulties 3-cannot, due to health status 4-cannot, due to other reasons	- without difficulties -with difficulties -cannot, due to health status -cannot, due to other reasons	-yes, has difficulty or cannot perform due to health status (incl. 2 & 3) -no, without difficulty or other reasons (incl. 1 & 4).
Question M2 AVO Gh'04	Receiving support with arranging issues related to a physical disability	1-no support 2-sometimes support 3-usually support	-no support -sometimes support -usually support	-yes, receives support (incl. 2 & 3) -no, does not receive support (incl. 1)
Question M1d AVO Gh'04	Nobody to give advise when searching for the most appropriate health care service	1-totally agree 2-agree 3-agree nor disagree 4-disagree 5-totally disagree	-agree (incl. 1 & 2) -agree nor disagree -disagree (incl. 4 & 5)	-yes, does not have a person to give advise (incl. 1 & 2) -no, does have a person to give advise (incl. 3 & 4 & 5)
Question M3 AVO Gh'04	Reasons for receiving support with arranging issues related to a physical disability	1-lack of knowledge on how to arrange health care services 2-lack of energy 3-difficulty with writing/calling 4-no access to email/internet 5-other reasons	-lack of knowledge on how to arrange health care services -lack of energy -difficulty with writing/calling -no access to email/internet -other reasons	^a
Question M4 AVO Gh'04	Receives support of child and/or parent	1-yes, receives this 2-no, does not receive this	-yes, receives this -no, does not receive this	^a
Question M4 AVO Gh'04	Receives support of partner	1-yes, receives this 2-no, does not receive this	-yes, receives this -no, does not receive this	^a
Question H5a AVO Gh'04	Having a need for professional home care and submitting an application for professional home care	1-yes, I have also applied for 2,yes, I have not applied for 3-no	-yes, has applied for (incl. 1) -no, has not applied for (includes 2 & 3)	-yes, has applied for (incl. 1) -no, has not applied for (includes 2 & 3)
Question H1a AVO Gh'04	Using professional home care	1-yes, uses professional home care 2-no, does not use professional home care	1-yes 2-no	1-yes 2-no
Question G4a AVO Gh'04	Having a need for housing adaptations and submitting an application for housing adaptations	1-yes, has applied for 2-no, have not applied for	1-yes 2-no	1-yes 2-no

^aLogistic regression analysis was not possible due to a small number of respondents

2.2.1 First research question

In this paragraph the variables, both independent and dependent, which have been used to answer the first research question ('To what degree is the application for health care services a bottleneck for physically disabled persons? ') will be presented.

The first dependent variable is *searching for information on health care services*. Searching for information is of importance for submitting an application, because if persons are well informed on the application process they will probably have fewer difficulties with submitting an application. They know for example to which authorized (semi-) governmental body an application must be submitted.

Searching for information can be done in several ways. Persons can read a brochure, can talk to friends or *use the internet*. The latter is of interest here, because nowadays a lot of information is available on the internet. Persons who do not or rarely use the internet lack a possibility to gather information on health care services. Although the survey question on using internet does not focus on using internet to search for health information, but on using internet in general, this question will be used in our study to investigate whether persons look on websites for information on health care services.

The two last dependent variables indicate the degree to which persons are able to perform simple administrative work. Two survey questions have been used to study this: one on *shying away from submitting an application for health care services* and one on *the difficulty someone has with performing simple administrative work*. Although this former survey question focuses on shying away from using health care services, this question has been used to study whether persons shy away from applying for these services in particular. The question on performing simple administrative activities has been based on a survey question on the ability to perform activities such as paying bills and filling in forms.

Age, gender, education, income and physical disability are the independent variables that have been included in the statistical analyses to answer research question 1.

Age has been included in our study, because people in certain age groups, for example elderly, will probably have more difficulty with applying for health care services. More elderly will also need professional home care and housing adaptations due to their physical state. Age has been divided in four answering categories: 18-34 years, 35-54 years, 55-74 years and 75 years and older.

Gender has been used, because especially among elderly, men and women will probably differ in the skills needed for submitting an application for health care services.

Educational level has been included as it is likely that there will be a difference between higher and lower educated persons in applying for health care services. The former will for example be more familiar with searching information. Education has been based on a survey question on the highest level of completed education, that has been divided in three answering categories: (low) not higher than junior secondary vocational education (LBO or lower), (average) general secondary education, senior secondary vocational education, senior general secondary education or pre-university education (MAVO, MBO, HAVO or VWO) and (high) higher vocational education or university education (HBO or WO).

Income is of importance in our study, because sometimes co-payments have to be paid to use health care services. For example, persons have to pay an income-related co-payment to use professional home care (AWBZ) and local councils can ask a co-payment to use housing adaptations (Wvg). In addition, it is likely that persons with a relative high income will be able to buy private health care services, while those with a low income have to rely on public health care services. The income variable in this study consists of the standardised net monthly household income (holiday allowance included). Standardised means that the income variable has been adjusted for the household size. The standardised net monthly income has been divided in four answering categories: 0-1200 euro, 1200-2000 euro, 2000-3000 euro and 3000 euro or above.

Physical disability has been included, because moderate and severe physically disabled persons will probably differ in their ability to perform activities needed to apply for health care services. It is also likely that they differ in their need for professional home care and housing adaptations.

To determine whether respondents have a physical disability a Mokken-scale has been used. This Mokken-scale has been based on a large number of survey questions (AVO'03) on performing daily activities, seeing and hearing.

This scale has been reduced to four answering categories: no, slightly, moderate and severe physical disability (De Klerk, Iedema & Van Campen 2006 for a more comprehensive explanation).

If someone has a moderate physical disability, this means that he or she has difficulty with performing more than one activity. A severe physical disability in general means that someone is not able to perform at least one activity by him- or herself (De Klerk & Schellingerhout 2006).

2.2.2 Second research question (first approach)

As indicated in the preceding chapter, two approaches have been used to answer the second research question ('Does the social network exert influence on the application for health care services of physically disabled persons?'). The survey questions that have been used for the first approach will be presented in this section.

The dependent variables of the first approach concern the informational and instrumental support (see § 1.3) received of the social network when applying for health care services. Whether physically disabled people *receive support of their social network when applying for health care services* has been examined using a survey question on receiving support with arranging physical disability related issues. These activities include for example contacting an authorized body for information on the application for professional home care. Another survey question on missing a person that can give advice when searching for the most appropriate health care services has also been used to investigate whether physically disabled persons receive support when submitting an application.

A third and fourth dependent variable concerns *the reasons why persons receive support of others when applying for health care services* and *from who they receive this support*. Only the physically disabled persons who receive support of their social network have naturally been included here.

The independent variables of the second research question consist, next to those of the first research question (age, gender, education, income and physical disability), also of *network characteristics*. In our study the network approach has been used to measure the social network, because only quantitative characteristics are available in the data sets.

Characteristics of the social network are: (1) 'the presence of a partner and/or child(eren) and/or parent(s), (2) the frequency of contact with child(eren) and/or parent(s) and (3) the travel time to child(eren) and/or parent(s)'.

It has been assumed that the central question of the social support-approach (distinguishing persons who are able to lend support) can be derived from these elements. If someone has social relations there is an actual chance that he or she will receive support of them. Moreover, it is more likely that someone will receive support of the persons he or she speaks regularly. Finally, people living near by will probably have more contact and will lend more support than others.

The partner, parents and children have been chosen, because they provide most of the instrumental support, for example doing odd jobs in or around the house (Knijn & Liefbroer 2004). Usually the partner is the first to lend this support (Hortulanus et al. 2003). Parents and children also help each other regularly (Knijn & Liefbroer 2004).

The independent network variable *presence of a partner* (two answering categories: yes or no) has been based on two survey questions: one concerning the relationship of the respondent with the head of the household (six answering categories: head of the household, spouse, partner, child, family (in-law) and remaining family) and a second question on the presence of a (permanent) partner of the head of the household (two answering categories: yes or no). This construction is needed, because unfortunately neither the AVO'03 nor the AVO gh'04 includes a survey question on having a partner⁴.

Whether a respondent *has at least one child or a parent* (two answering categories: yes or no) has been based on a survey question on the frequency of contact with social network members (AVO gh'04, question L2). One of the categories of this survey question is 'not applicable, because no child/parent'. Respondents who have answered they have contact with their child(ren)/parent(s), and therefore naturally have at least one child or a parent, have been converted into the group with at least one

⁴ If someone is the spouse or the partner of the head of the household, they naturally have a partner. This only applies for the head of the household if it appears from the second survey question he or she has a (permanent) partner. It has also been checked whether children, family (in-law) and remaining family of the head of the household (could) have a partner. It seems practically impossible they have a partner.

child/parent (category 'yes'). Others who have answered 'not applicable, because no child or parents' have been converted to the group respondent without any children/parents (category 'no').

Subsequently, we only wanted to include respondents having children of eighteen years or older, because it has been assumed that only they are able to assist their parents when submitting an application for professional home care and housing adaptations. Both datasets do not include a question on having adult children. Therefore, parents of children born between 1973 and 2003 have been selected based on different questions, for example whether respondents have school-going children.

The frequency of contact with family members includes all contacts, both face-to-face contacts as written and telephone or email contacts with children or parents (AVO gh'04, question L2). This survey question has three answering possibilities: often contact (includes once a week or more often), regular contact (includes once per two weeks and once a month) and rarely or never contact (includes less than once a month and rarely or never). In a similar way as with the presence of children, contacts with children under eighteen have been left out of consideration.

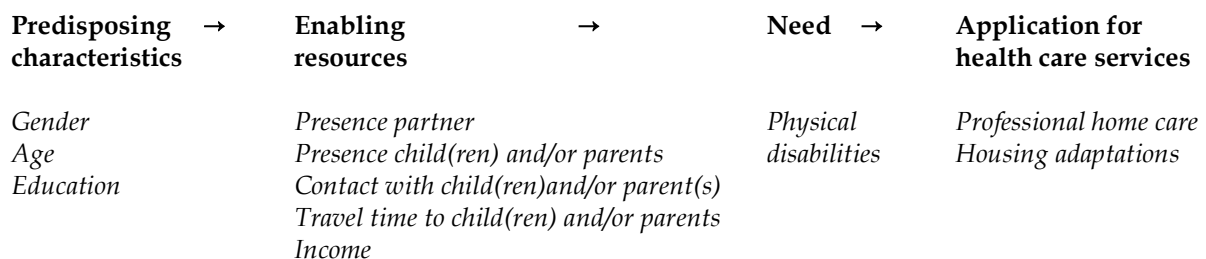
The travel time to family members (children or parents), (answering categories: <30 or >30 minutes travelling) has also been used as a characteristic of the social network (AVO gh'04, question O4). As well, the travel time to children younger than eighteen has been left out of consideration.

2.2.3 Second research question (second approach)

To answer the second research question ('Does the social network exert influence on the application for health care services of physically disabled persons?') also the Andersen model has been tested.

The Andersen model has partly been adjusted for our study, because it focuses on factors that influence the *use* of health care services (Figure 2). Our study focuses on the *application* for health care services.

Figure 2 The adjusted Behavioral Model of Health Services Use



The first research question and the first approach of the second research questions focus on health care services in general. The second approach of the second research question studies two types of health care services in particular: professional home care during the past twelve months and the application for housing adaptations during the past 5 years by physically disabled persons with a need for these services. However, due to a small number of respondents that have answered the survey question on submitting an application for professional home care, the actual use of professional home care in the past twelve months by physically disabled persons has also been investigated. The choice of these two types of health care services has, next to the reasons mentioned in the introduction, been based on the availability of data at the Social and Cultural Planning Office of the Netherlands (Sociaal en Cultureel Planbureau, SCP).

Firstly, the relation between the background characteristics (age, gender, education, income, physical disability and network characteristics) and the application for professional home care and housing adaptations and the use of professional home care has been studied.

This has also been done for persons without a partner in particular, because especially for them the influence of their social network may be important.

Secondly, it has been tested whether the predisposing variables, enabling resources or need explain most of the variance of the utilization of professional home care and application for and housing adaptations.

The *predisposing variables* consist of gender, age and education. The social network characteristics and income are *enabling resources*. The degree of physical disability is a measure of the *need* to apply for health care services.

Lastly, it has been studied whether the dependent variables of the first and second (first approach) research questions are directly related to the application for professional home care and housing adaptations and the utilization of professional home care. The physically disabled persons with a subjective need for professional home care or housing adaptations, but who have not applied for these services have been selected to study these relations (except for the utilization of professional home care).

The independent variables that have been included here are searching for information, using internet, shying away from or having difficulties with submitting an application and lack of knowledge on the application process. The dependent variables consist of the use professional home care of the application for housing adaptations. The other dependent variables of the second research question (first approach) have not been included, because the second approach focuses on this relation.

2.3 Analyses

Relations between dependent and independent variables have first been examined by bivariate analysis (chi square-test). This analysis has been used, because it is an appropriate test for the association between variables, of which some are nominal.

In addition, these relations have also been examined by multivariate analysis (logistic regression analysis). Odds ratios represent the underlying relationships of variables.

To study whether predisposing variables, enabling characteristics or need explain most of the variance of health services use also a multivariate analysis (logistic regression analysis) has been used. A pseudo R^2 represents the variance in the dependent variable explained by the group of independent variables.

Logistic regression analysis has been chosen, because all dependent variables are dichotomous (or have been made dichotomous, because certain answering categories have only been chosen by very few respondents). A 95%-confidence interval ($p < 0.05$) has been used in all the statistical analyses. However, results with a p-level between 0.05 and 0.10 have also been studied. These results can be considered as results seeming to indicate in the direction of a significant difference. The reason for including these results is that some of the statistical analyses have been based on few respondents (a result of this is that the differences between groups will not easily be significant). In the next chapters only significant or near significant results will be discussed. Moreover, only these results will be presented in the tables (tables are presented in the chapters and in Appendix B).

The results of our study will sometimes be extrapolated to the general Dutch population by using a weight factor. This weight factor has been based on the total number of non-institutionalised persons of eighteen years or older in the Netherlands.

3. Bottlenecks of applying for health care services

3.1. Personal competences needed for submitting an application

If persons with a physical disability want to use health care services they have to submit an application to an authorized body in the Netherlands. As discussed, not all persons needing these services actually apply for them. Some of them may not receive health care services, because they are not able to take the first step in the application process, i.e. submitting an application. To what degree applying for health care services is a bottleneck for physically disabled persons will be examined in this chapter (research question 1). Physically disabled persons consist in our study of those with a moderate or severe physical disability.

Whether someone is able to submit an application heavily depends on his or her personal competences. Firstly, persons have to be able to search for information, because it is important that they are well informed on the available health care services and on the application process. The internet, an increasingly important source of information, can be used to search this information.

Usually some administrative activities have to be performed to apply for health care services, such as filling in forms. Therefore, a second personal competence required to submit an application is the ability to perform simple administrative work. Whether persons are able to apply for health care services will also be derived from the degree to which persons shy away from submitting an application.

The ability to search information on health care services will be presented in paragraphs 3.2 and 3.3. The degree to which physically disabled persons can perform simple administrative work and shy away from submitting an application will be investigated in paragraphs 3.4 and 3.5. The conclusion will be presented in paragraph 3.6.

3.2 Searching for information

Approximately 18% of the persons with a physical disability (roughly 300,000 people) do not search information on a wanted product or service (Table B2).

Results of a logistic regression analysis seem to indicate that fewer people aged 75 years or older search information than 18-35 year-olds (Table 2).

Less persons with a low educational level search information than persons with a high educational level. The results of a logistic regression analysis confirm this finding. The difference between those with a medium and a high educational level does not remain significant when applying a logistic regression analysis. Both groups may relatively often search information or the small number of respondents may have led to the insignificant difference between them (Table 2).

Table 2: Physically disabled persons searching for information on health care services according to background characteristics (in odds ratios, only significant ($p < 0.05$) or near significant odds ratios have been presented; $n=624$)

	Searching for information on health care services
age group	
35-54 years (compared to 18-34 years)	n.s.
55-75 years (compared to 18-34 years)	n.s.
≥ 75 years (compared to 18-34 years)	0.42 ($p=0.06$)
gender	
women (compared to men)	n.s.
highest level of completed education	
low (compared to high)	0.54
medium (compared to high)	n.s.
standardised net monthly household income	
<1200 euro (compared to >3000 euro)	n.s.
1200-2000 euro (compared to >3000 euro)	n.s.
2000-3000 euro (compared to >3000 euro)	n.s.
physical disability	
severe physical disability (compared to moderate physical disability)	n.s.
R ² (Nagelkerke) in %	4

Source: SCP (AVO Gehandicaptent'04-AVO'03)

3.3 Searching for information on the internet

Almost three quarter of the physically disabled people (approximately 1 million persons) rarely or never use the internet (Table B3).

Seventy percent of those with a moderate physical disability rarely or never use the internet. Persons with a severe physical disability use the internet even less frequently: about 16% use the internet regular or often. After ruling out the influence of other independent variables through the application of a logistic regression analysis, it appears that the degree of physical disability is not significantly related to the use of internet (Table 3).

The percentage of persons aged 55 years or older using the internet is lowest compared to other age groups (Table B3). This also appears from the results of a logistic regression analysis (Table 3).

Fewer women use the internet than men (Table B3). This difference remains significant after controlling for other background characteristics (Table 3).

Educational level is also significantly associated with the use of internet. Especially those with a low educational level hardly use the internet; merely one out of ten use this often (Table B3). The results of a logistic regression analysis also clearly show that the chance that someone will use the internet is higher among those with a high education level (Table 3).

The number of persons using internet is higher among those in higher income groups (Table B3). From a logistic regression analysis, it appears that persons on low incomes have a lower chance of using the internet than those with a high income (Table 3).

Table 3: Physically disabled persons using internet according to background characteristics (in odds ratio's, only significant (p<0.05) or near significant odds ratios have been presented; n=1440)

	Use of internet
age group	
35-54 years (compared to 18-34 years)	0.29
55-75 years (compared to 18-34 years)	0.09
≥ 75 years (compared to 18-34 years)	0.01
gender	
women (compared to men)	0.55
highest level of completed education	
low (compared to high)	0.14
medium (compared to high)	0.35
standardised net monthly household income	
<1200 euro (compared to >3000 euro)	0.49
1200-2000 euro (compared to >3000 euro)	n.s.
2000-3000 euro (compared to >3000 euro)	n.s.
physical disability	
severe physical disability (compared to moderate physical disability)	n.s.
R ² (Nagelkerke) in %	41

Source: SCP (AVO'03)

3.4 Shying away from submitting an application

A large part of the physically disabled persons (61.4%, approximately 900,000 people) shy away from applying for health care services (Table B4).

Somewhat more severely physical disabled indicate that this applies to them than those with a moderate physical disability (Table B4). After controlling for other background characteristics physical disability remains significantly related to shying away from submitting an application. However, contrary to the results of the bivariate analysis, the chance that someone shies away is highest among those with a moderate physical disability (Table 4).

More than half of the persons aged 18-54 years affirmatively answer the question whether they shy away from submitting an application. The percentage of 55-74 year-olds that shy away from this is the highest, even higher than the percentage of those aged 75 years or older (Table B4). However, the results of a logistic regression analysis do not show a significant relation between age and shying away from applying for health care services.

Table 4: Physically disabled persons shying away from the troubles of submitting an application according to background characteristics (in odds ratios, only significant ($p < 0.05$) or near significant odds ratios have been presented; $n=636$)

	Shying away from the troubles of submitting an application
age group	
18-34 years (compared to ≥ 75 years)	n.s.
35-54 years (compared to ≥ 75 years)	n.s.
55-74 years (compared to ≥ 75 years)	n.s.
gender	
women (compared to men)	n.s.
highest level of completed education	
medium (compared to low)	n.s.
high (compared to low)	n.s.
standardised net monthly household income	
1200-2000 euro (compared to <1200 euro)	n.s.
2000-3000 euro (compared to <1200 euro)	n.s.
≥ 3000 euro (compared to <1200 euro)	n.s.
physical disability	
moderate physical disability (compared to severe physical disability)	1.60
R ² (Nagelkerke) in %	3

Source: SCP (AVO Gehandicaptent'04-AVO'03)

3.5 Performing simple administrative work

It is possible that persons shy away from submitting an application, because they have to perform administrative work in order to apply. Some of the physically disabled people may perform these activities without any trouble. Others may have difficulties in doing so, or even are not able to do so, due to problems with their health or other problems.

The majority of the physically disabled persons indicate that they perform simple administrative work without any difficulty. However, some persons, 17.4%, have difficulty with these activities (roughly 300.000 people). Nearly 6% (approximately 100.000 persons) state that they cannot perform simple administrative work due to health problems (Table B5).

As expected, especially severe physically disabled persons have difficulty with simple administrative work. They also often indicate that they are hindered by their health to perform these activities (Table B5). The degree of physical disability remains positively related to having difficulties with performing administrative activities after controlling for other background characteristics (Table 5).

The number of persons having difficulties with performing administrative activities is highest among those with a low educational level. They also indicate most often that they cannot perform these activities due to their health (Table B5). The results of a logistic regression confirm that physical disability and educational level are both significantly related to having difficulties with performing simple administrative work (Table 5).

Compared to other age groups persons aged 75 years or older indicate the most that they have difficulties with and cannot perform administrative activities due to health problems (Table B5). If other background variables are taken into account age does not remain significantly related to the difficulties one has with performing simple administrative work (Table 5).

It is possible that age is connected to educational level. People with a physical disability aged 75 years or older often have a low educational level. In addition, especially persons with a low educational

level have difficulties with performing simple administrative work or cannot do this due to health problems.

The number of persons on a low monthly income reporting problems with simple administrative work is higher than among others (Table B5). Taking other background characteristics into account the influence of income is no longer significant (Table 5). It is likely that persons on low income have difficulty with performing administrative activities, mainly because they have a low(er) educational level.

Table 5: Physically disabled persons hindered in performing simple administrative work (sometimes due to health problems) according to background characteristics (in odds ratios, only significant ($p < 0.05$) or near significant odds ratios have been presented; $n = 1461$)

	Hindered with performing simple administrative work (sometimes due to health problems)
age group	
35-54 years (compared to 18-34 years)	n.s.
55-75 years (compared to 18-34 years)	n.s.
≥ 75 years (compared to 18-34 years)	n.s.
gender	
women (compared to men)	n.s.
highest level of completed education	
low (compared to high)	4.50
medium (compared to high)	2.51
standardised net monthly household income	
<1200 euro (compared to >3000 euro)	n.s.
1200-2000 euro (compared to >3000 euro)	n.s.
2000-3000 euro (compared to >3000 euro)	n.s.
physical disability	
severe physical disability (compared to moderate physical disability)	3.06
R² (Nagelkerke) in %	15

Source: SCP (AVO'03)

3.6 Conclusion

Applying for health care services can be problematic for physically disabled persons, because not all of them are well informed on this subject due to lack of searching information. This especially relates to physically disabled persons with a low educational level and those aged 75 years or older.

The application for health care services may also be hindered, because a large group physically disabled persons do not use the internet to search information on health care services. Persons aged 55 years or older, women, those with a low educational level and those on low income in particular do not use the internet.

Applying for health care services can also be impeded, because many of the people with a physical disability shy away from submitting an application, especially those with a moderate physical disability.

Another factor that can hinder the application process is the required simple administrative work. Not all physically disabled people can perform these activities without difficulty and some cannot perform these activities at all due to health problems. Especially persons with a severe physical disability and those with a low educational level have difficulty with performing simple administrative work.

Although it appears that applying for health care services is a bottleneck for many physically disabled people, they may still submit an application. Others may lend them support when submitting an application. If and from who persons receive this support will be discussed in the next chapter.

4. Influence of social support on applying for health care services

4.1 Support of the social network

As appeared from chapter 3, submitting an application for health care services is problematic for many physically disabled persons. Nevertheless, they can still apply with support of their social network. For example, a son can fill in an application form for professional home care for his mother. Whether the social network exerts influence on the application for health care services (research question 2) will be answered using two approaches. The first approach focuses on instrumental and informational support with applying for health care services lend by the social network of physically disabled persons. The second approach focuses on the effect of the presence of specific social network members on the application for health care services.

The results of the first approach will be presented in this chapter. It will be investigated whether the social network lends support when applying for health care services (§ 4.3). The reasons why people receive this support will be discussed in paragraph 4.4. The social network members that most often lend support when submitting an application will be presented in paragraphs 4.5 and 4.6. In the next paragraph it will be discussed whether persons lack this support (§ 4.7). Before presenting these results, some attention will be paid to the extent and the composition of the social network of physically disabled persons, because not all of them may be able to make an appeal to their social network (§ 4.2). Some may not have parents, a partner or children. In the final paragraph the conclusion will be presented (§ 4.8).

4.2 Composition of the social network

More than half of the physically disabled persons have a partner (Table 6). This particularly applies to many 35-74 year-olds, younger persons often do not yet have a partner and elderly have often lost their partner. More than 70% has one or more children and nearly 30% has at least one parent. Merely 10% has neither a child nor a parent. Most persons often (once a week or more) have contact with their child(ren) or parent(s) (Table 6).

Table 6: Members of the social network (parents, partner, and children) of physically disabled persons per age group (in percentages, which have been horizontally presented)

	18-34 years	35-54 years	55-74 years	≥ 75 years	total	total (n)
has partner	51.7	69.8	64.9	32.6	55.4	341
has child(ren) ^b	7.2	44.6	90.8	88.3	72.6	447
child(ren) lives nearby ^b	2.1	27.9	69.8	69.0	54.0	319
has parent(s)	92.2	69.2	9.9	0.5	27.7	171
parent(s) lives near by	76.1	45.2	12.4	0.7	21.9	129
has parent(s) and/or child(ren)	92.9	90.3	91.4	88.3	90.4	556
parent(s) and/or child(ren) lives nearby	76.1	63.6	74.2	69.0	70.1	414
<u>selection respondents with child(ren)^b:</u>						
often contact with child(ren)	100.0	90.8	85.1	83.3	85.4	382
regular contact with child(ren)	0.0	5.2	9.0	10.9	9.1	41
rarely or never contact with child(ren)	0.0	4.0	5.9	5.8	5.5	25
<u>selection respondents with parent(s):</u>						
often contact with parent(s)	70.1	67.6	73.7	0.0	68.7	117
regular contact with parent(s)	22.3	15.8	15.6	100.0	17.7	31
rarely or never contact with parent(s)	7.6	16.6	10.7	0.0	13.6	23
<u>selection respondents with parent(s) and/or child(ren):</u>						
often contact with parent(s) and/or child(ren)	70.8	80.9	80.9	83.3	82.7	461
regular contact with parent(s) and/or child(ren)	21.7	9.5	9.5	10.9	10.5	58
rarely or never contact with parent(s) and/or child(ren)	7.4	9.6	9.6	5.8	6.8	38
total (n)	(43)	(155)	(231)	(188)		(617)

a Some percentages have been based on very small numbers of respondents, especially with 18-34 year-olds and those of 75 years or older.

b In the category 'no children' children under 18 years have been included, because it has been assumed that they cannot lend support.

Source: SCP (AVO Gehandicaptent'04-AVO'03)

4.3 Support with applying for health care services

When submitting an application 32% (approximately 500,000 people) of the physically disabled persons receive support. More than half of them receive this support sometimes and nearly half mostly (Table B7).

Not surprisingly, the degree of physical disability is positively associated with receiving support (Table B7). This also appears from a logistic regression analysis (Table 7).

The number of persons aged 75 years or older receiving support is the highest, followed by the 18-34 year-olds (Table B7). The results of a logistic regression also show that more persons aged 75 or older receive support than 35-74 year-olds (Table 7).

Among those with a higher educational level, fewer people receive support. After adjusting for other background characteristics educational level remains negatively related to the support when submitting an application (Table 7).

Physically disabled persons on low income state most often (38.6%) that their social network supports them. Taking other background characteristics into account the relation between income and receiving support becomes insignificant (Table 7). The effect of income is probably caused by differences in educational level. Those with a low income will often have a low educational level and as discussed many of the latter receive support.

Results of a bivariate analysis seem to indicate that more single persons receive support than those with a partner (Table B7). This is not confirmed in a logistic regression analysis (Table 7). Age likely influences this association: especially elderly receive support and they relatively less often have a partner (Table 6).

Results also seem to indicate that the percentage of persons who have family in the first degree (at least one child or parent) who receive support is higher than among others (Table B7). This relation does not remain significant when taking other background characteristics into account (Table 7).

Table 7: Physically disabled persons receiving support when submitting an application for health care services according to background characteristics (in odds ratios, only significant ($p < 0.05$) or near significant odds ratios have been presented; $n=697$)

	support when submitting an application for health care services
age group	
18-34 years (compared to ≥ 75 years)	n.s.
35-54 years (compared to ≥ 75 years)	0.58
55-74 years (compared to ≥ 75 years)	0.55
gender	
women (compared to men)	n.s.
highest level of completed education	
average (compared to low)	0.51
high (compared to low)	0.30
standardised net monthly household income	
1200-2000 euro (compared to < 1200 euro)	n.s.
2000-3000 euro (compared to < 1200 euro)	n.s.
≥ 3000 euro (compared to < 1200 euro)	n.s.
relationship	
without a partner (compared to partner)	n.s.
frequency contact family (in the first degree)	
regular contact (compared to often contact)	n.s.
rarely or never contact (compared to often contact)	n.s.
no child(ren)/ parents or contact with child(ren) < 18 years (compared to often contact)	n.s.
travel time family (in the first degree)	
> 30 minutes travelling (compared to < 30 minutes)	n.s.
physical disability	
moderate physical disability (compared to severe physical disability)	0.50
R ² (Nagelkerke) in %	14

Source: SCP (AVO Gehandicapten'04-AVO'03)

4.4 Reasons for receiving support

The most frequently mentioned reason for receiving support by physically disabled persons is lack of knowledge (49.3%, about 800,000 persons). Other reasons are lack of energy (24.5%), difficulty with writing and/or telephoning (15.3), lack of access to internet and or email (8.6%) and other unknown reasons (31.7%) (Table B8). Lacking knowledge is the only variable with a sufficient number of respondents to look at differences between sub-groups. Therefore, only the background characteristics associated with a lack of knowledge on submitting an application will be presented.

Persons aged 75 years or older most often state that they receive support, because they do not know how to arrange health care services (61.4%). The 35-54 year-olds declare this the least often (34.2%).

In addition, a substantial part of the 18-34 year-olds and the 55-74 year-olds do not know how they have to submit applications (Table B8).

Single people (particularly elderly) more frequently say that a lack of knowledge is a reason for receiving support than those with a partner (Table B8).

The influence of other background characteristics cannot be ruled out, because the number of respondents is too small for a logistic regression analysis.

4.5 Support of children or parents

The social network members that most frequently provide support when submitting an application are the adult children or parents⁵ (48.2%, approximately 200,000 physically disabled persons).

Particularly people aged 75 years or older and 18-34 year-olds often state that they receive support of their children or parents (Table B9). Considering the composition of the social network of these groups (Table 6) it is likely that mainly children support those aged 75 years or older and parents those in the 18-34 age group.

The number of women (53.3%) receiving support of their children or parents is higher than the number of men (37.1%, Table B9).

Those with a partner less often declare that they receive support of their children or parents than single people (respectively 30.3% en 66.3%, Table B9).

Naturally, receiving support of a child or parent is connected to having these family members. Somewhat more than half of the persons who have at least one child or parent have been supported by them (Table B9).

Those who live near by their parents or children more frequently state that they receive support than others. This also relates to people who often have contact with their family (Table B9).

It is not possible to control for background characteristics due to a small numbers of respondents.

4.6 Support of a partner

A partner also often lends support with applying for health care services (37.1%, approximately 200,000 people, Table B10), but to a less degree than children or parents. This is probably because persons with a physical disability less often have a partner than children or parents (Table 6).

As expected, those aged 75 years or older state the least that they receive support of their partner (Table B9). Among those in the 18-34 age group also relatively few say that their partner lends them support (Table B10).

Bivariate results seem to indicate that fewer women (32.8%) state that they receive support of their partner than men (46.8%, Table B10).

Naturally, having a partner is connected to the support a person receives of his or her partner. Single persons simply cannot make an appeal to a partner. Almost 30% of the people with a partner do not receive support of him or her (Table B10).

The influence of other background characteristics cannot be ruled out, because not enough respondents have answered this survey question.

4.7 Missing a person that can lend support

Physically disabled persons who state that they do not receive support when submitting an application may actually not need this, because they can apply by themselves. However, it is also

⁵ A distinction between adult children and parents cannot be made

possible that they need support to apply for health care services, but there is nobody who is able to or wants to lend support.

More than one out of five physically disabled persons (about 350,000 people) state that there is nobody in their social network who is able to support them (Table B11).

Persons aged 75 years or older state the least that they do not have a persons who is able to lend support (Table B11).

People with a partner more frequently state that someone is able to support them than single persons (Table B11).

The influence of both having a relationship and age on having someone who is able to lend support remains significantly related in the logistic regression analysis (Table 11).

Table 11: Physically disabled persons missing a person who is able to lend support when submitting an application for health care services according to background characteristics (in odds ratios, only significant odds ratios ($p < 0.05$) have been presented; $n=636$)

	missing a person to lend support when submitting an application for health care services
age group	
18-34 years (compared to ≥ 75 years)	3.82
35-54 years (compared to ≥ 75 years)	2.72
55-74 years (compared to ≥ 75 years)	2.94
gender	
women (compared to men)	n.s.
highest level of completed education	
medium (compared to low)	n.s.
high (compared to low)	n.s.
standardised net monthly household income	
1200-2000 euro (compared to < 1200 euro)	n.s.
2000-3000 euro (compared to < 1200 euro)	n.s.
≥ 3000 euro (compared to < 1200 euro)	n.s.
relationship	
without partner (compared to partner)	1.80
frequency contact family (in the first degree)	
regular contact (compared to often contact)	n.s.
rarely of never contact (compared to often contact)	n.s.
no children/parents or contact with children < 18 years (compared to often contact)	n.s.
travel time to family (in the first degree)	
> 30 minutes travelling (compared to < 30 minutes)	n.s.
physical disability	
moderate physical disability (compared to severe physical disability)	n.s.
R² (Nagelkerke) in %	8

Source: SCP (AVO Gehandicapten'04-AVO'03)

4.8 Conclusion

The social network of physically disabled persons positively exerts influence on the application for health care services by lending support when submitting an application. Almost one third of the people receive this support. This especially applies to those with a severe physical disability, those aged 75 years or older and those with a low educational level. A part of them may be dependent on this support to apply for health care services.

Physically disabled persons mainly need this support, because they do not know how they have to apply for health care services. Especially people aged 75 years or older and those without a partner (these groups partly overlap) lack this knowledge.

Many physically disabled persons receive support of their children or parents. This particularly concerns those aged 75 years or older, those in the 18-34 age group, women, single persons, those who live near by their family and those who often have contact with their family.

Physically disabled people also often receive support of their partner. Those aged 75 years or older, 18-34 year-olds, women and naturally those without a partner receive this support the least.

Some physically disabled people, especially those younger than 75 years and single persons, do not have a person that can lend them support with applying for health care services. If these persons are not able to submit an application by themselves, for example because this is too difficult for them, they will probably not use the services they need.

In this chapter, the support lent by the social network to physically disabled persons when applying for health care services has been analysed. Whether this support leads to more applications for health care services will be presented in the next chapter.

5. Influence of the presence of a social network on applying for health care services

5.1 Presence of a social network

In this chapter, the second approach will be used to answer whether the social network exerts influence on the application for health care services. In this second approach, the Andersen model will be used to investigate whether the presence of social network members positively influences the application for health care services.

In paragraph 5.2, the influence of the social network on submitting an application for professional home care will be examined. This analysis is limited due to a small number of respondents. Therefore, the influence of the presence of social network members on the actual *utilization* of professional home care will also be studied (§ 5.3). In paragraph 5.4, the influence of the social network on the application for housing adaptations will be investigated. The relations tested in paragraph 5.3 and 5.4 will also be studied for single persons in particular. The next paragraph will examine whether searching for information, using internet, shying away from and having difficulties with submitting an application and lack of knowledge on the application process are directly related to the application for professional home care and housing adaptations and the utilization of professional home care (§ 5.5). In the last paragraph the conclusion will be presented (§ 5.6)

5.2 Application for professional home care

Only 36% of the physically disabled persons (approximately 70,000 people) who have a subjective need for professional home care actually applied for this during the past twelve months before the interview (Table B12).

The severely physical disabled more frequently state that they submit an application than those with a moderate physical disability (Table 12).

Due to a small number of respondents, the influence of other background characteristics cannot be ruled out.

5.3 Utilization of professional home care

One third of the physically disabled persons (roughly 500,000 people) received professional home care during the past twelve months before the interview (Table B13).

As expected, more persons with a severe physical disability use professional home care than those with a moderate physical disability (Table B13).

Women more often state that they receive professional home care than men (Table B13).

Not surprisingly, a large part of the persons aged 75 years or older receive professional home care (61.5%). Only 7% of the persons in the 18-34 age group use professional home care (Table B13).

The effect of the degree of physical disability, gender and age remains significant after adjusting for other background characteristics (Table 13).

Merely one out of nine of those with a high income receive professional home care (Table B13). The results of a logistic regression analysis also show that more persons in the two lowest income categories receive professional home care than those in the highest income category (Table 13).

People with a low educational level most frequently state that they use professional home care (Table B13). Results of a logistic regression analysis do not confirm this (Table 13). Income may have influenced this, persons with a low educational level often have a low income, and most of those on low income receive professional home care.

The number of persons with a partner using professional home care is lower than the number of single people (Table B13). This is confirmed in a logistic regression analysis (Table 13).

It also appears from the results of a logistic regression analysis that persons with a physical disability who do not have family in the first degree less frequently state that they use professional home care than those who often have contact with their family.

Results of a logistic regression analysis also show that physically disabled people who do not live near by their family most often say that they receive professional home care than others (Table 13).

Single women and single men do not differ in the use of professional home care in contrast to women and men with a partner (Table 13).

Among single persons, the number using professional home care is also higher among higher age groups and among those with a severe physical disability (Table B13/13).

The results of a bivariate analysis seem to indicate that more physically disabled single people with at least one child or parent use professional home care than those without these family members (Table B13). The results of a logistic regression analysis show that fewer persons without family receive professional health care than those who often have contact with their family (Table 13). These results also show that more people who do not live near by their family use professional home care than others (Table 13).

To what degree predisposing characteristics, enabling resources or need explain the use of professional home care has been investigated with logistic regression analyses.

Need (physical disability) explains least of the variance in utilization of professional home care by physically disabled persons ($R^2=7\%$).

Predisposing characteristics (age, gender and educational level) are the most important variables explaining the variance in utilization of professional home care ($R^2=20\%$).

The enabling resources (presence of partner, presence of family, travel time to family, contact with family and income) explain the variance in utilization of professional home care to a less degree than predisposing characteristics ($R^2=11\%$), but they still are more important than need.

Table 13: Physically disabled persons using professional home care according to background characteristics (in odds ratios, only significant odds ratios ($p < 0.05$) have been presented; $n=621$)

	Utilization of professional home care
age group	
18-34 years (compared to ≥ 75 years)	0.07 / 0.06
35-54 years (compared to ≥ 75 years)	0.18 / 0.15
55-74 years (compared to ≥ 75 years)	0.28 / 0.43
gender	
women (compared to men)	1.70 / n.s.
highest level of completed education	
low (compared to high)	n.s. / n.s.
medium (compared to high)	n.s. / n.s.
standardised net monthly household income	
<1200 euro (compared to ≥ 3000 euro)	4.73 / n.s.
1200-2000 euro (compared to ≥ 3000 euro)	5.5 / n.s.
2000-3000 euro (compared to ≥ 3000 euro)	n.s. / n.s.
relationship	
partner (compared to without partner)	0.42
frequency contact to family (in the first degree)	
regular contact (compared to often contact)	n.s. / n.s.
rarely or never contact (compared to often contact)	n.s. / n.s.
no children/parents or contact with children < 18 years (compared to often contact)	0.43 / 0.35
travel time to family (in the first degree)	
> 30 minutes travelling (compared to < 30 minutes)	1.68 / 2.44
physical disability	
moderate disability (compared to severe disability)	0.34 / 0.29
R ² (Nagelkerke) in %	29 / 28

a Odds ratios of single persons are in bold.

Source: SCP (AVO Gehandicapten'04-AVO'03)

5.4 Application for housing adaptations

One third of the physically disabled persons with a subjective need for housing adaptations applied for them during the past five years before the interview took place (Table B14). The number of persons with a severe physical disability that apply for housing adaptations is higher than the number of those with a moderate physical disability (Table B14).

The results of a bivariate analysis also seem to indicate that persons aged 75 years or older more frequently state that they submit an application than others (Table B14). The results of a logistic regression confirm that more persons aged 75 years or older submit an application for housing adaptations than those in the 55-74 age group (Table 14).

The results of a bivariate analysis seem to indicate that men more often state that they apply for housing adaptations than women (Table B14).

The number of people with a low educational level that submit an application for housing adaptations is higher than among those with medium or high educational level.

With the exception of age, the associations do not remain significant after adjusting for other background characteristics (Table 14).

The results of a bivariate analysis seem to indicate that living near by your family is of importance among single persons with a physical disability. Those who live near by their family more frequently state that they apply for housing adaptations than others (Table B14). It is not possible to adjust for the influence of other background characteristics due to a small number of respondents.

When analysing the explanatory role of the different characteristics of the Andersen model in the application for housing adaptations the predisposing characteristics explain most variance of applying for housing adaptations (13%).

Enabling resources are also of importance for applying for housing adaptations but to a less degree than predisposing characteristics (10%).

Need explains least of the variance in submitting an application for housing adaptations (6%).

Table 14: Physically disabled persons with a subjective need for housing adaptations submitting an application for housing adaptations according to background characteristics (in odds ratios, only significant odds ratios ($p < 0.05$) have been presented; $n=185$)

	Applying for housing adaptations
age group	
18-34 years (compared to ≥ 75 years)	n.s.
35-54 years (compared to ≥ 75 years)	n.s.
55-74 years (compared to ≥ 75 years)	0.42
gender	
women (compared to men)	n.s.
highest level of completed education	
low (compared to high)	n.s.
medium (compared to high)	n.s.
standardised net monthly household income	
< 1200 euro (compared to ≥ 3000 euro)	n.s.
1200-2000 euro (compared to ≥ 3000 euro)	n.s.
2000-3000 euro (compared to ≥ 3000 euro)	n.s.
relationship	
partner (compared to without partner)	n.s.
frequency contact family (in the first degree)	
regular contact (compared to often contact)	n.s.
rarely or never contact (compared to often contact)	n.s.
no children/parents or contact with children < 18 years (compared to often contact)	n.s.
travel time to family (in the first degree)	
> 30 minutes travelling (compared to < 30 minutes)	n.s.
physical disability	
moderate disability (compared to severe disability)	n.s.
R ² (Nagelkerke) in %	23

Source: SCP (AVO Gehandicaptent'04-AVO'03)

5.5 Influence of problems with submitting an application on professional home care and housing adaptations

Results of a logistic regression seem to indicate that fewer physically disabled persons who shy away submit an application for housing adaptations than others (Table B15a). In addition, fewer of them receive professional home care compared to those who do not shy away (Table B15b).

Some physically disabled persons have not applied for professional home care and housing adaptations, because they did not know how they have to do this (Table 16).

Investigating which background characteristics relates with lacking knowledge on applying for professional home care or housing adaptations is not possible, because the number of respondents is too small.

5.6 Conclusion

It appears from this chapter that the social network of physically disabled persons exerts influence on the application for health care services. Physically disabled persons who often have contact with their family more frequently state that they use professional home care than others. Singles who live near by their family⁶ more often indicate that they submit an application for housing adaptations than others.

Other physically disabled persons who relatively frequent state that they use professional home care are severe physically disabled persons, those aged 75 years or older, women, those on low incomes, physically disabled single people and those who do not live near by their family.

Among single physically disabled persons especially those with a severe physical disability, those aged 75 years or older and singles who do not live nearby their family often indicate that they use professional home care.

The predisposing characteristics explain most of the variance in the utilization of professional home care by physically disabled people, followed by enabling resources and lastly need.

Merely one third of the physically disabled persons with a need for professional home care or for housing adaptations have applied for this. Especially persons with a severe physical disability submit an application. However, due to a small number of respondents, the application for professional home care could not be fully investigated. The physically disabled people who most often state that they submit an application for housing adaptations are those aged 75 years or older.

The background characteristics that explain the variance in the application for housing adaptations by physically disabled persons most are the predisposing characteristics. Enabling resources explain the variance in the application for housing adaptation to a less degree, need explains the least.

Shying away from submitting an application in particular influences whether physically disabled persons use professional home care and apply for housing adaptations.

⁶ This result could not be tested with a logistic regression analysis due to a small number of respondents

6. Conclusion

6.1 Research subjects

Most people perform daily activities such as dressing themselves thoughtless and without any trouble. However, for many of the physically disabled persons these activities require a lot of effort, time and energy. Sometimes they are not able to perform these daily activities on their own at all.

To enable physically disabled persons to perform such daily activities and therefore enable them to live independently, some adaptations in their houses, such as a seat or a grab bar in the shower, are needed. Professional home care can also enable physically disabled persons to live longer in their own houses by performing activities such as cleaning the bathroom or kitchen.

Although professional home care and housing adaptations are of crucial importance for physically disabled persons to live independently, research showed that not all persons needing such health care services actually used them (Gorter 1989; Hortulanus et al. 2003; Van Campen and De Klerk 2004).

In the Netherlands, physically disabled persons who want to use professional home care or housing adaptations have to submit an application to an authorized body. Persons may not use the needed health care services, because they have difficulties with submitting such an application. Whether this is an obstacle for people to apply for professional home care and housing adaptations was one of the subjects of our study. The research question used to study this subject was:

'To what degree is the application for health care services a bottleneck for physically disabled persons?'

To answer this question it has been investigated whether persons searched for information on health care services related to their physical disability. In addition, it has been studied whether they used the internet to search information. Searching for information has been included, because a lack of this can lead to inadequate knowledge on health care services. If persons are not informed on the available health care services, they will simply not apply for them. If they are aware of this, but do not know how and where they can submit an application, the application for health care services will be hampered or even actually be hindered.

Our study also investigated whether persons shied away from or had difficulties with submitting an application. Shying away and having difficulties with performing administrative work are problematic for the application process, because both may actually impede the application for health care services.

The relations between the degree to which the application for health care services is a bottleneck and age, gender, educational level, income or physical disability has been studied.

If persons are not able to or have difficulties with submitting an application, they may submit an application as yet, because social network members may lend them support. Whether a social network exerted influence on the application for health care services was the main subject of our study. The mediating role of the social network with applying for health care services is still ambiguous. Many studies focused on the utilization of health care services, considerable fewer on submitting an application. Only some of them studied the role of the social network.

The research question of the second subject of our study was:

'Does the social network exert influence on the application for health care services of physically disabled persons?'

To answer this research question two approaches have been used. First, we examined whether a social network lent support when submitting an application at all (§ 6.2). This approach dealt with the questions whether social network members lent instrumental or informative support when submitting an application, and if so, why they did so and who did so. The relations between and the latter questions and gender, age, educational level, income, physical disability and network characteristics have been studied.

The second approach attempted to unravel the influence of the presence of social network members on submitting an application using the Andersen model (1995).

In contrast to the first research question and the first approach of the second research question, not health care services in general, but two specific types of health care services have been studied, namely professional home care and housing adaptations (§ 6.3).

Differences in the application for professional home care and housing adaptations and gender, age, educational level, income, physical disability and network characteristics have been investigated. However, only a small percentage of the respondents answered the survey question on the application for professional home care. Therefore, the utilization of professional home care has also been studied.

Next, it has been studied whether the predisposing characteristics, enabling resources or need of the Andersen model explained the variance in the utilization of professional home care and the application for housing adaptations most.

Finally, the relations between the problems with submitting an application (the first research question and the first approach of the second research question) and application for professional home care and housing adaptations the utilization of professional home care have also been studied.

The information to study both research questions has been derived from two data sets of the Social and Cultural Planning Office of the Netherlands (SCP, Sociaal en Cultureel Planbureau):

-the Amenities and Services Utilization Survey 2003 (Aanvullend Voorzieningen Onderzoek 2003, AVO'03) and;

-the Amenities and Services Utilization Survey for the Physically Disabled 2004 (Aanvullend Voorzieningen Onderzoek Gehandicapten 2004, AVOGh'04).

The data of non-institutionalised Dutch adults with a moderate or severe physical disability have been selected for our study.

These data have been analysed using both bivariate analysis and multivariate logistic analysis. The results of the multivariate logistic analysis will be presented here. However, if a multivariate logistic regression analysis was not possible, due to restrictions in the data, the results of the bivariate analysis will be presented instead.

6.2 Problems with applying for health care services

Our study showed that submitting an application for health care services is a bottleneck for many physically disabled persons.

Firstly, physically disabled persons were often not well informed on the options of using health care services and the application process, because not all of them searched for information on health care services (18.2%). In addition, the internet, an increasing important source of information, was hardly used (25.6%).

Compared with the general Dutch population, the percentage of non-internet users among people with a physical disability is considerable higher (18%, CBS 2006). This can partly be explained by the fact that our study included relatively many elderly and elderly in general use the computer and internet less often (De Haan 2004).

Old age and educational level were associated with not searching for information on health care services. Middle and old age, gender, educational level and income were associated with not using internet to search for this information (Table 17).

It is likely that fewer elderly searched for information, because they usually have more restrictions in activities such as reading an information brochure due to deterioration in their mental or physical health state.

Differences in searching for information according to educational level can be explained by less prior experience with searching for information by persons with a low education. Obviously, persons with a high educational level will have learned more about methods of searching for reliable information sources than those with a low educational level. It is also likely that persons with a low educational level have more difficulty with understanding the information they find and therefore will be less motivated to search information. A similar explanation can be used for the lower use of the internet by persons with a low educational level. They will have acquired less computer skills during their education and may not understand the information founded on the websites.

Fewer middle-aged and elderly might used the internet, because many of them do not have a computer or internet access at home. Consequently, they will be less familiar with the internet and rarely use the internet to search health information (Lorence, Park & Fox. 2006).

As expected, fewer women with a physical disability used the internet, because women in general also are behind in using internet compared to men (De Haan 2004). Low income probably negatively affected the use of internet, because the costs of having a computer and access to internet will be a substantial financial barrier.

A study focused on Dutch adults with a chronic disease or a physical disability showed the same results as our study: fewer persons with a chronic disorder or physical disability used the internet than the general Dutch population. Mainly young and highly educated adults used the internet (Van den Brink-Muinen 2006).

Table 17: Characteristics associated with research question 1

	age	gender	educational level	income	physical disability
Not searching information on health care services	75 years or older		low educational level		
Not using internet	55 years or older	women	low educational level	low income	
Shying away from submitting an application for health care services					moderate physical disability
Having difficulties with performing simple administrative work			low educational level		severe physical disability

Secondly, the application process itself was a bottleneck for some physically disabled persons to apply for health care services. Many persons with a physical disability shied away from submitting an application (61.4%). In addition, some had difficulty with simple administrative work needed for submitting an application (17.4%) or could not perform them due to health problems (5.9%).

Shying away from submitting an application and having difficulties with activities needed for applying were both associated with having a physical disability (Table 17). It is likely that many persons with a moderate physical disability shied away, because they are less familiar with the application process than the severely physically disabled, who probably submitted applications before (Table 17).

The level of severity can explain why having difficulties with applying for health care services was associated with having a severe disability, the severely disabled will simply be hindered more by their disability than the moderately disabled. They will have more difficulty with for example visiting an information desk of the municipality than those with a moderate physical disability.

In addition, having difficulties with performing simple administrative work was associated with educational level (Table 17). A possible explanation for the difference in educational level is that higher educated persons will be more skilled due to their education to perform these administrative activities than lower educated persons.

Another Dutch study also showed that the application process could be a bottleneck for physically disabled persons. The problems they especially encountered were lack of transparency of the application process and inadequate distribution of information on the application for health care services (Gorter 1989). De Klerk & Schellingerhout (2006) also found that some of the persons with a physical disability were dissatisfied with the information facilities on health care services.

6.3 Support of social network with applying for health care services (first approach)

Although submitting an application could be a bottleneck for physically disabled persons, some of them might do this as yet, because many physically disabled persons received support with applying for health care services of their social network (32.1%). In other words, the social network positively exerted influence on the application for health care services.

Severe physical disability, old age and a low educational level were associated with receiving support of social network members (Table 18).

Many of those on low income and those with a severe physical disability probably received support, because they had difficulties with applying for health care services (see § 6.1).

Although having difficulties with submitting an application was not associated with age (see § 6.1), many of the elderly received support of their social network when submitting an application. It is possible they received this support, because their social network also provides other kinds of support, for example getting groceries, and therefore they will be more inclined to assist them also with activities such as filling in an application form. It is also likely that the social network of elderly persons assumes that they anyway will need support and therefore more elderly received support than others.

Other studies also showed that social network members lent support to persons when submitting an application for health care services. More than 20% of the applications for services of the Services for the Disabled Act (Wvg) (and for social security allowance) have been submitted by other persons than the applicant. The latter mainly were elderly (De Klerk & Schellingerhout 2006). Another Dutch study showed that merely 27% of the elderly applied for professional home care by themselves. Almost half of the applications for professional home care have been submitted by members of their social network (Kempen & Suurmeijer 1989).

Table 18: Characteristics associated with research question 2 (first approach)

	age	gender	educational level	income	physical disability	presence partner and/or child/parent	frequency contact child/parent	travel time child/parent
receiving support	75 years or older		low educational level		severe physical disability			
receiving support due to lack of knowledge ^a	75 years or older					single		
child/parent lends support ^a	18-34 year-olds/ 75 years or older	women				single	regular contact	living near by
partner lends support ^a	35-75 year-olds	men				partner		
nobody to lend support	<75 years					single		

^a These results could only be tested with bivariate correlations

Unfortunately, the results that will further be discussed could not be adjusted for the influence of background characteristics.

Many physically disabled people mention a lack of knowledge as a reason for receiving support of their social network (49.3%). Associated with not knowing how or where to apply for health care services were age and not having a relationship (Table 18).

Other studies also showed that many persons did not know where to apply for health care services. Many physically disabled people and elderly, with a need for technical aids, including housing adaptations, did not know that these services existed or did not know how and where to apply for

them (Gorter 1989; De Klerk & Huijsman 1995). Other research confirms this. One third of the persons with a chronic disorder were not aware of the Services for the Disabled Act (Wvg), based on which housing adaptations could be applied for in The Netherlands (Heijmans, Spreeuwenberg & Rijken 2005). A study among Belgian disabled elderly showed that many of them, especially women and the oldest elderly, were not aware of assistive devices, including housing adaptations like walking frames or bath support rails (Roelands et al. 2002).

The social network members that most often lend support when submitting an application for health care services were the parents or (adult) children (48.2%).

Receiving support of parents or children was associated with age, gender and not having a relationship (Table 18).

Especially 18-34 year-olds and elderly received support of their parent or child, probably because many of them, in particular the youngest of the first group and the oldest elderly do not have a partner (anymore). If they have a partner, they may need support of their parent or child as yet, because their partner may also lack knowledge. For example, many elderly did not search information (see § 6.1).

It is likely that more women than men received support, because the oldest elderly, who relatively often received support of their children, mainly were women. Also, their partner usually performed administrative tasks and therefore they are not experienced with these tasks themselves. More single people will have made an appeal to children or parents, simply because they cannot ask a partner.

Consistent with our results other studies indicated that children(-in-law) often lent (both emotional and instrumental) support to their parents (Kempen & Suurmeijer 1989; Broese van Groenou 2002). Children appeared to be better at arranging care (including professional home care) for their parents after hospitalization than partners (Pohl, Collins & Given 1995) and elderly often turned to their children for support when applying for technical aids, including housing adaptations (De Klerk & Huijsman 1995).

The results of our study also showed that in particular people who live near by their adult children or parents and who regularly have contact with them received support of them (Table 18). A 'stronger' social network probably leads to a situation where physically disabled persons are more inclined to ask social network members for support. Moreover, these social network members will probably notice sooner that their child or parent needs support when submitting an application and offer this support than others.

Further, it appeared from our study that partners also lent support when submitting an application (37.1%). Especially persons who did not receive support of their children or parents, received this of their partner. Receiving support of a partner was related to age, gender and naturally having a relationship (Table 18).

Many persons in the 35-75 age group received support of their partner, probably because they often have a partner. In addition, the majority of this group can probably not rely on their child or parent, because they are still too young and inexperienced or too old and need support themselves.

It is likely that men received support of their partner, because as discussed before, the oldest elderly mainly were women. Consequently, many men will be younger than 75 years and therefore can rely on their partner.

Kempen & Suurmeijer (1989) also found that next to children a partner often lent support with applying for professional home care.

From another study it also appeared that especially elderly (55-85 year-olds) had the most intensive exchange of (both emotional and instrumental) support with their partner (Broese van Groenou 2002).

The following results have again been adjusted for the influence of background characteristics.

Our study showed that a rather large group, one out of five, could not rely on their social network for support when applying for health care services. Not being supported by social network members was associated with age and not having a partner (Table 18). If the application for health care services is a bottleneck for these persons, which is likely for a rather large part of the people with a physical disability, they will probably not succeed to complete the application process or 'choose' not to apply at all, because support is not available.

6.4 Presence of social network members (second approach)

It appeared from our study that not all physically disabled persons who want to use professional home care or housing adaptations submitted an application, only around one third of them actually did.

Some might did not apply, because they thought they will not be considered as eligible by a needs assessment agency (RIO). This might be caused by a rejection of the RIO in the past. It is also possible that some physically disabled persons feel ashamed to use health care services. Alternatively, as discussed in the previous paragraph, they may find submitting an application (too) difficult and may not have social network members to support them with this. Whether the application for professional home care and housing adaptations is related to having a social network has been studied. These results will be presented separately for professional home care and housing adaptations.

6.4.1 Utilization of professional home care

The results of our study showed that both applying for⁷ and using professional home care were associated with severe physical disability. In addition, the utilization of professional home care was also related to old age, gender, low income and not having a partner (Table 19).

Likely, more severely physically disabled and more elderly used professional home care, because they have more difficulties with performing daily activities.

More women than men used professional home care, probably because in most households women run the house. If women are not able to do this anymore, few men will take over these tasks, because men usually are not experienced with running the house. Due to this traditional allocation of work women have a greater need for professional home care (Riemsma et al. 1998).⁸

A finding of Jörg (2003) may partially explain why more single persons used professional home care: living alone tremendously increased the chance of being granted by needs assessment agencies for formal home care. Single persons naturally do not have a partner which can give informal care.

More people with a low income used professional home care, probably because an income-related co-payment has to be paid to use professional home care in the Netherlands. It can therefore be financially attractive for persons with a high income to buy private home care. Another reason may be that persons who can afford it rather buy private home care, because they do not have to submit an application and wait for an assessment by a needs assessment agency. Another possible reason is having control of the provided home care. For example, receiving care of the same person or choosing the day on which the care is given.

⁷ Unfortunately, due to a small number of respondents, applying for professional home care could not be studied in more detail and therefore the utilization of professional home care has been investigated.

⁸ Nowadays this should no longer be possible. The 'new' needs assessment agency, the Centrum Indicatiestelling Zorg (CIZ), uses a criterion that healthy members of the family should take over all domestic tasks when someone in their household is no longer able to perform them (CIZ 2005).

Table 19: Characteristics associated with research question 2 (second approach)

	age	gender	educational level	income	physical disability	presence partner and/or child/parent	frequency contact child/parent	travel time child/parent
Application for professional home care ^a					severe physical disability			living near by
Utilization of professional home care	75 years or older	women		low income	severe physical disability	single	often contact	not living near by

a These results could only be tested with bivariate correlations

Portrait (2000) found that next to need, also demographic and socioeconomic characteristics such as old age, and low income positively affected the application for professional home care by Dutch elderly (Portrait 2000).

Other studies, summarised in Table 20, found similar results as our study concerning the use of professional home care by Dutch adults. It appeared from these studies that especially persons with a low social economic status, elderly and single persons used professional home care.

Studies that focused on Dutch elderly instead of all Dutch adults, also confirmed our findings. These studies showed that single persons, women, people with more severe physical health problems, those on low income, those with a low social economic status and the oldest elderly were the largest users of professional home care (Table 20).

The effect of educational level on the use of professional care is ambiguous. While we did not find a significant effect, Portrait, Lindeboom & Deeg (2000) found that more elderly with a high educational level used professional home care. In contrast, Slangen-de Kort (1998) showed that this applied to those with a low educational level. Portrait, Lindeboom & Deeg (2000) provided a possible explanation for their finding: highly educated elderly may have better access to information on the options of professional home care and use this information more efficiently than less educated people (Portrait, Lindeboom & Deeg 2000). Slangen-de Kort, Midden & Van Wagenberg (1998) argued that elderly with a higher educational level are more able to analyse the problem-situation and therefore choose a more pro-active solution, such as housing adaptations, to solve their problems with daily living instead of professional home care.

This explanation is comparable with the reasoning of Portrait, Lindeboom & Deeg (2000), namely having more knowledge on the options for care giving (Slangen-de Kort, Midden & Van Wagenberg 1998).

The difference between these studies can be explained by differences in the analyses. Portrait, Lindeboom & Deeg (2000) studied the use of professional home care per se, but Slangen-de Kort, Midden & Van Wagenberg (1998) investigated whether persons chose housing adaptations, professional home care or informal care to solve their problems.

Table 20: Characteristics associated with the utilization of professional home care derived from studies conducted in the Netherlands

	age	gender	educational level	income	social economic status	physical disability/ need	presence partner and/or child/parent
<u>selected on adults</u>							
Hortulanus et al. 2003	>65 years				low social economic status		
De Klerk & Schellingerhout 2006		a	a	a			single
<u>selected on elderly</u>							
Slangen-de Kort, Midden & Van Wagenberg 1998	a	a	low educational level	a			a
Kempen & Suurmeijer 1989		women	a				single
Frederiks et al. 1990	a	women	a	a		severe physical disability	single
Huijsman 1990		women			low social economic status		single
Kempen & Suurmeijer 1991a		women	a	low income			single
Portrait, Lindeboom & Deeg 2000	old age	women	high educational level				single
Geerlings, Broese van Groenou & Deeg 2004	old age			a		severe physical disability	single
De Boer & De Klerk 2006		a	a	a	a	severe physical disability	a
Schuijt-Lucassen & Broese van Groenou 2006	old age	women	a	low income		severe physical disability	a
Thomése & Broese van Groenou 2006				a			single

^a These variables have not been included in the study

Studies among elderly living in other countries than the Netherlands also showed that especially the oldest elderly, women single elderly and the more severe disabled elderly used professional home care.

In contrast to our results, more American elderly with a high income and a higher educational level (educational level is probably connected to income in this study) used professional home care than others (Table 21). Differing health insurance systems between the Netherlands and the United States may explain this. As discussed before, Dutch elderly have to pay an income-related co-payment to use professional home care. Therefore, those with a higher income may buy private home care instead. In the United States professional home care is mostly not reimbursed or only for a relatively little part.

Consequently, persons in all income levels have to pay a substantial part of the costs of professional home care and this will be a barrier for those with lower income levels to use this care.

A Swedish study showed another contrasting result. Instead of more women, more men used professional home care (Table 21). This study found contrasting results, probably because they studied whether informal care or formal care would be used, while our study focused on the use of formal home care per se. Herlitz (1997) argued that men received more professional home care, because women have to rely less on this care due to traditional sex roles. Consequently, women are more able and proficient to cope and organize domestic tasks themselves, for example by arranging informal care (Herlitz 1997).

Table 21: Characteristics associated with utilization of professional home care derived from studies *not* conducted in the Netherlands

	age	gender	educational level	income	social economic status	physical disability	presence partner and/or child/parent
<u>selected on elderly</u>							
Branch et al. 1981 (USA)				high income			
Bowling, Farquhar & Browne 1991 (United Kingdom)			a	a		severe physical disability	single
Wolinsky & Johnson 1991 (USA)				a		severe physical disability	
Coughlin et al. 1992 (USA)	old age	women	a	high income		severe physical disability	single
Kemper 1992 (USA)				high income			
Rabiner 1992 (USA)			a	a		severe physical disability	a
Stoller & Cutler 1993 (USA)	a		a	high income			single
Mui & Burnette 1994 (USA)			a			severe physical disability	single
Herlitz 1997 (Sweden)		men		a		severe physical disability	single
Norgard & Rodgers 1997 (USA)	old age		higher educational level			severe physical disability	single
Thorslund, Norström & Wernberg 1997 (Sweden)		a	a	a		severe physical disability	single
Van Houtven & Norton 2004 (USA)	old age	women					
Hellström & Hallberg 2004 (Sweden)			a			a	single
Pommer et al. 2007 (nine EU-countries) ^b	old age					severe disability	

a These variables have not been included in the study

b Sweden, Denmark, the Netherlands, France, Austria, Germany, Italy, Spain and Greece.

Our study showed that next to the already mentioned characteristics also the frequency of contact with and the travel time to family members (child or parent) were associated with the utilization of professional home care (Table 19).

More persons who often have contact with their children or parents used professional home care than those without these social network members or those who do not have contact with them (Table 19). Social network members having regular contact will probably notice sooner that their child or parent has difficulty with some domestic or personal care activities. They can positively influence the use of professional home care by trying to discuss these problems, persuade their child or parent to use professional home care and lend them support when submitting an application. More persons not living near by their family than others obviously used professional home care, because the travel time of their family negatively influenced informal care giving (De Boer, Iedema & Mulder 2005; Broese van Groenou 2004). Therefore, physically disabled persons will have to rely more on professional home care. As discussed before, persons without or only with a small amount of informal care have a greater chance of being granted for professional home care by a needs assessment agency (Jörg 2003).

Besides focusing on the associations between separate background characteristics and the use of professional home care, our study also investigated which group of variables of the Andersen model explain the variance in the use of professional home care most. These groups consisted of the predisposing characteristics (age, gender and educational level), enabling resources (presence of partner, child or parent, travel time to child or parent, contact with child or parent and income) and need (physical disability).

Surprisingly, need explained least of the variance in professional home care use by physically disabled persons. Instead, predisposing variables explained the variance in utilization of this health care service most. Enabling resources were also of importance for professional home care use.

These results are striking, because not the difference in physical disability but other characteristics, like educational level and the contact with social network members, not directly related to health status affected the likelihood of professional home care use most. Consequently, this implies that not the persons with the largest need, but rather persons who have more resources, for example having a strong social network, used professional home care. It must be noticed here however, that the respondents included in our study all have a physical disability and 'need' therefore will differ less between these respondents than in a study including the general population. Despite this, even studies focused on 'less healthy' populations usually found that need explained most of the variance in health care services use.

Coulton & Frost (1982) for example stated that need explained the use of personal care services by American elderly, including professional home care, most. Both predisposing variables and enabling resources explained little additional variance (Coulton & Frost 1982). Another American study focused on elderly found similar results regarding the use of professional home care (Evashwick et al. 1984).

Mui & Burnette (1994) showed that all three types of factors significantly contributed to explaining the variance of in-home service use. Need explained most, followed by predisposing variables (Mui & Brunette 1994). Some Dutch studies focused on elderly found that need explained most of the variance in professional home care use, both predisposing and enabling variables contributed less to this variance (Kempen & Suurmeijer 1991b; Geerlings et al. 2005).

Similar to our findings Mitchell & Krout (1998) stated that predisposing and enabling characteristics explained the difference in the utilization of formal care of elderly Americans most.

6.4.2 Application for housing adaptations

As mentioned in paragraph 6.3, only one third of the physically disabled persons with a need for housing adaptations actually applied for them. Our results showed that applying for housing adaptations was associated with age (Table 22).

Especially elderly submitted an application, because they will simply need these aids more due to deterioration of their physical state.

In contrast to the results of the application for professional home care, not more persons with a severe physical disability applied for housing adaptations than those with a moderate physical disability. This difference can be partly explained, because the former results could not be adjusted for the influence of other characteristics. It is likely that physical disability is connected to age, because the oldest elderly often also have severe physical disabilities.

Table 22: Background characteristics associated with research question 2 (second approach)

	age	gender	educational level	income	physical disability	presence partner and/or child/parent	frequency contact child/parent	travel time child/parent
Application for housing adaptations	75 years or older							living near by ^a

^a This result only applies to physically disabled persons without a partner

Other studies showed that especially the oldest elderly (Den Uyl & Fleur 1991), elderly women, elderly with a high educational level (Slangen-de Kort, Midden & Van Wagenberg 1998), elderly with functional disabilities (De Klerk & Huijsman 1997) and the more severely physical disabled (Gorter 1989) used technical aids for basic activities of daily living, such as housing adaptations. In addition, more physically disabled elderly who have lost a partner used housing adaptations in their home compared to those with a partner (Thomése & Broese van Groenou 2006).

The results of our study seemed to indicate that more single persons who live near by their family applied for housing adaptations than those who do not live near by⁹. In contrast, as discussed before, if family members live near by fewer persons used professional home care than others.

It is likely that social network members first try to provide the needed care services themselves. Professional home care can be substituted by informal care, so that is probably why fewer persons living near by their family received professional home care. If social network members cannot manage to provide the needed care by themselves, they will probably urge their physically disabled family member to submit an application for this service and support them with this. Likely, this applies to housing adaptations. Some adaptations may be installed by family, like a grab-bar in the toilet, but most adaptations will probably be too complex to install, not available in 'normal' shops or (too) expensive to pay out of their own pocket.

Similar to the results of the use of professional care, the predisposing variables of the Andersen model (age, gender and educational level) explained most of the variance in the application for housing adaptations by physically disabled persons, followed by enabling resources. Consequently, need explained least of this variance.

De Klerk (1997) found that both need and predisposing variables explained the use of technical aids most by Dutch elderly, including housing adaptations.

As already shown in § 6.2, the results concerning the best explaining variables of the use of professional home care and the application for housing adaptations are mixed. A possible explanation for this is the type of health care service used as outcome variable (Andersen 1995). Less discretionary health care services, like physician visits or hospitalization, which cannot be substituted by other means and therefore have very few alternatives are explained most by need. In contrast, more discretionary health care services for less immediate needs, like professional home care or housing adaptations, offer the patients more choice or discretion in the use of these services. Therefore, factors not related to need influence the utilization of discretionary health care services most (Mitchell & Krout 1998).

However, as discussed before, even studies focused on professional home care and housing adaptations, which can be seen as discretionary health care services, show mixed results. This may be explained by differences in the study sample (Mitchell & Krout 1998), for example some studies included adults and some only elderly.

Another possible reason for this difference is the health insurance system. In the United States, there is no universal health insurance system, only some specific groups, like elderly or the poor, are eligible for public health insurance. It can be difficult for unemployed people, persons working in small businesses or the self-employed to insure themselves privately against health care costs, because health insurance is mainly available through participation in the labour market (Folland, Goodman & Stano 2004). In the Netherlands, all Dutch residents are insured for exceptional medical expenses,

⁹ This result could only be tested with bivariate correlations.

Due to a small number of respondents, this result could not be compared to the result of the application for professional home care

including professional home care (Exceptional Medical Expenses Act, AWBZ). In addition, they can appeal to the Services for the Disabled Act (Wvg) for housing adaptations. Therefore, income will probably influence the application for and use of health care services more in the United States than in the Netherlands.

The mixed results concerning the best explaining variables of differences in professional home care use and in the application for housing adaptations may also be explained by different views of what professional home care and housing adaptations consist of. For example, professional home care consisted in some studies of all paid household help, while others only included care provided by a formal caregiver. Moreover, some studies added housing adaptations and other technical aids, such as electric wheelchairs or alarm systems, together.

Lastly, the results may also differ, because the groups of variables of the Andersen model included distinct variables. For example, enabling factors consisted in a study of Mitchell & Krout (1998) of income, social support and transportation needs, while others used financial access and educational level (Coulton & Frost 1982).

The last focus of our study concerned the influence of having problems with submitting an application on the actual use of and the application for professional home care and housing adaptations.

Our results seemed to indicate that fewer physically disabled persons who shy away submitted an application for housing adaptations and used professional home care than those who do not shy away.

It also appeared from our study that lack of knowledge could be problematic for applying for professional home care and housing adaptations.

Other studies also indicated that inadequate knowledge on health care services could be an important reason for non-use of health care services, including housing adaptations (Gorter 1989; Kempen & Suurmeijer 1989; De Boer & De Klerk 2004; De Klerk & Schellingerhout 2006). This latter study showed that approximately 20% of the physically disabled people who want to use professional home care or Wvg-services did not submit an application for this due to lack of knowledge (De Klerk & Schellingerhout 2006).

6.5 Influence of a social network on the application for health care services

In the literature, there is no consensus on the matter whether a social network influences the use of and application for health care services. Some argued that the social network had a positive effect. For example, Kempen & Suurmeijer (1989) stated that more than half of the Dutch elderly that applied for professional home care have been urged to do this by children(-in-law). Fewer socially isolated elderly used personal care services, including formal home care (Coulton & Frost 1982¹⁰), and technical aids, including housing adaptations, than elderly with more social contacts (De Klerk 1997). Deeg & Smits (1995) found that more Dutch elderly women who received instrumental support of important social network members, used care, including professional home care. This 'support leads to more knowledge on and a stimulus to arranging health care services' (Deeg & Smits 1995:55). Achterberg et al. (1996) also emphasized the importance of instrumental support. Receiving this support increased the number of professional community care givers (Achterberg et al. 1996).

De Klerk & Huijsman (1995) found that fewer persons who suffer from feelings of loneliness used housing adaptations than others. These persons lack social support and will probably therefore not be encouraged to submit an application or supported with this latter (De Klerk & Huijsman 1995).

In contrast, others stated that having a social network negatively influenced the use of formal health care services (Pommer et al. 2007). Among American and Swedish elderly the chance of using professional home care reduced when they had (many) children (Soldo, Wolf & Agree 1990; Kemper 1992; Hellström & Hallberg 2004) or a spouse (Kemper 1992; Mitchell & Krout 1998). Less Dutch elderly who do not live alone (Portrait, Lindeboom & Deeg 2000 ; Schuijt-Lucassen & Broese van Groenou 2006) and who have qualitatively superior social contacts (Riemsma et al. 1998; Breemhaar et al. 1991; Hortulanus et al. 2003; Schuijt-Lucassen & Broese van Groenou 2006) used professional home care.

¹⁰ This study has been conducted in the United States.

Others found that the social network hardly influenced the use of health care services (Huijsman 1990; Hortulanus et al. 2003), including professional home care (Kempen & Suurmeijer 1991a). Portrait (2000) stated that in contrast to having a partner social conditions, such as having social contacts, did not significantly influence the decision of Dutch elderly to submit an application for formal care at home.

Possible explanations for these mixed results are differences in successively the type of outcome variable used, the study sample and in the research setting. In addition, differences in the social network members included in the study may be an explanation. For example, some studies used a partner, parents and children to measure the social network, while others used brothers and sisters, friends and acquaintances as well.

Another reason is the measurement of the social support lent by social network members (Broadhead 1989). Studies that reported a negative influence of the social network on the use of or application for health care services often used qualitative or functional aspects of the social network, like the quality of contacts or loneliness, to measure the social support. Contrasting, those who found a positive connection between social support and the utilization of or application for health care services usually used quantitative or structural concepts, like size of the network and frequency of contacts, which do not account for the subjective evaluation of the social network (Broadhead et al. 1989).

In our study, quantitative concepts have been used to measure the social network. This led, in accordance with the argumentation of Broadhead et al. (1989), to the result that a 'stronger' social network (in which members often have contact with each other or live near by) positively exerted influence on the use of professional home care and on the application for housing adaptations.

7. Discussion

7.1 New insights

Our study is one of the first studies which focused on the problems physically disabled persons have with submitting an application for health care services and on the mediating role of the social network in the application and the utilization of health care services. It appeared from our study that submitting an application was a bottleneck for many people with a physical disability. Another result of our study is that the social network positively influenced the use of professional home care and the application for housing adaptations. In addition, our study showed that need explained least of the variance in use of and the application for these health care services.

Because our study shed light on a subject that has been studied rarely, our results could hardly be compared to other studies. Even the results of studies that also investigated the role of the social network could often not be used to properly compare our results. These studies often used (slightly) other health care services as outcome measure, included only elderly and often have been conducted in the United States. Nevertheless, some results of our study were confirmed by many studies. For example, the role of personal characteristics (with the exception of social network characteristics) related to the utilization of professional home care.

While the results of our study contribute to the knowledge on use of and the application for health care services, some shortcomings of the study must be noted. Firstly, the data sets used in our study have not specially been designed to investigate the subjects of interest. The difficulties of using secondary data analysis will be discussed in the next two paragraphs (§ 7.2 and § 7.3). In paragraph 7.4 it will be discussed which variables might also influence the use of and the application for health care services, but which have not been included in our study. In paragraph § 7.5 shortcomings in the research design to study the research questions will be presented.

7.2 Shortcomings in the measurement of the dependent variables

The research question whether submitting an application is a bottleneck for physically disabled has been based on four subjects. These subjects have been derived from survey questions, which might not accurately measured what they were supposed to measure. Our results might have been biased by this reduced internal validity.

The first subject concerned searching for information on health care services. The results might have been biased, because it is possible that persons conceived this subject as not only including searching information on health care services, but also on products such as a health insurance. It is likely that this problem also applies to the subjects that will further be discussed, with the exception of internet use and administrative activities.

The results may have also been influenced, because we assumed that persons who used the internet also used this information channel to search information on health care services. However, this does not have to apply to all persons. Some persons may use the internet, but not for searching information on health care services.

It has also been assumed that persons, who shy away from using new services or care, shy away because they have to submit an application. However, it is also possible that persons shy away due to other factors, such as the mess after the installation of a housing adaptation or the entry of unknown persons into the most personal aspects of someone's life.

If someone has difficulties with performing simple administrative work we assumed that he or she also has difficulties with submitting an application. Our results might have been influenced by this assumption as well. Although some persons may be able to perform simple administrative activities, such as filling in a form, they may still have difficulties with filling in several, more complicated forms needed to submit an application.

The internal validity may have also been threatened by the measurement of the social support received when submitting an application. Some respondents might received support, but not with activities of our interest. For example, a daughter informs her mother on the quality of different professional home care organisations.

7.3 Shortcomings in the measurement of the independent variables

In our study only adult children were of importance, because they can lend support when submitting

an application. The survey questions concerned children of all ages, so a new variable had to be constructed, including some assumptions. Our results might have been influenced by this construction, because some respondents with adult children may have been overlooked or some respondents may have been included, while they only had under aged children. It would be helpful for both the respondents and the researcher that the questions are more precise on whether only adult children are included or not in a following AVO survey.

Similarly, the data sets did not include a survey question on having a partner. So, again a new variable had to be constructed. Consequently, the results might have been influenced as well.

The results might also be influenced by the difficulty to accurately measure the role of the partner. Often, the support of a partner is taken for granted and persons might did not count this as social support.

Quantitative characteristics, which do not consider qualitative aspects, have been used to measure the social network in our study. Unfortunately, qualitative aspects of social networks could not be measured in our study, because both data sets included only a survey question on the subjective evaluation of the complete social network. Adding survey questions on qualitative aspects of the social network to both data sets is desirable for further research.

In our study the social network consisted of the partner, children and/or parents. Other persons, like siblings, friends, acquaintances and neighbours can lend support as well (Broese van Groenou 2002), but have not been included in our study. Neither, specific attention has been paid to children-in-law. Consequently, our results might have been influenced, because it is possible that some persons counted them as their children, while others did not.

Another shortcoming of the measurement of the social network is that we knew little of the characteristics of the social network members, such as educational level and having a physical disability. This information is needed to check whether these network members are able to lend support at all and what kind of support they will lend. For example, many informal caregivers find applying for technical aids difficult (Bos & Leemrijse 2005). Soldo, Wolf & Agree (1990) stated that daughters more often provided the needed care themselves, while sons were more inclined to arrange and financially support professional home care for their parents. It would be helpful for further research to add some survey questions on personal characteristics of social network members to both data sets.

Because only a small part of the whole social network has been included and quantitative characteristics have been used to measure it, the influence of the social network on applying for health care services could not fully been assessed in our study.

Despite this latter, it appeared from our study that the social network positively influenced the use of professional home care and the application for housing adaptations. Studies using the Behavioral Model of Health Services Use developed by Andersen (1995) to study the application for and use of health care services should therefore not only include background characteristics which are often used, like age and income. To attempt to understand these subjects as completely as possible it is needed to include also social network characteristics in the Andersen model, which as Andersen argues '[...] might fit quite nicely as enabling resources' (Andersen 1995:3).

7.4 Missing information

The preferences for care giving by physically disabled persons have not been included in our study. Consequently, it has not been considered whether persons did not apply for professional home care or housing adaptations, because they did not want to use these services. Other studies showed that some elderly rather used informal care than professional care (Wielink, De Klerk & Huijsman 1995, Broese van Groenou, Van der Pas & Deeg 2000).

Ethnic origin is also of importance in our study, because the social support persons receive will probably differ between ethnic groups. Moreover, these groups also differ in health care services use. Studies focused on racial differences in professional home care use showed mixed results. Some found that more non-Whites used professional home care (Wolinsky & Johnson 1991; Rabiner 1992; White-Means & Rubin 2004).

In contrast, Kemper (1992) and Mui & Burnette (1994) showed that more Whites used professional home care. Norgard & Rodgers (1997) found no racial differences for professional home care use. In our study it was not possible to include ethnic origin. The response among ethnic minority groups, especially among elderly, would have been low, because it was not possible to use specific strategies to increase this response.

Further, the degree of urbanization of the living area of respondents may influence the use of and the application for health care services. Studies showed different results of urbanization. For example, Coughlin et al. (1992) and Portrait (2000) showed that the degree of urbanization did not affect the decision of American and Dutch elderly to apply for professional home care. Thomése & Broese van Groenou (2006) found that more Dutch elderly living in lower urbanized areas mobilized informal care than formal care at home. Nyman et al. (1991) showed that more American elderly living in urban areas used professional home care. In contrast, a study focused on American elderly found that more rural residents used professional home care than urban residents (Saag et al. 1998). Differences in professional home care use and the application for housing adaptations and the degree of urbanization have not been studied in our study. In the Netherlands, these differences will be less present than in a country such as the United States. In addition, the degree of urbanization of the living area influences the use and application for health care services through a variety of mediating factors, such as the availability of formal care providers in the municipality. Some of these factors have been included in our study, such as age or income.

7.5 Shortcomings study design to study research questions

Some subjects could not be investigated in our study, because not enough data was available, for example the application for professional home care. Bivariate analysis or multivariate logistic analysis could not be carried out, because few respondents answered specific survey questions or chose specific answering categories.

Further, some results might were less accurate, because the analyses have been based on a small number of respondents. Inaccurate results have sometimes been obtained, because respondents misunderstood the survey questions or unintentionally marked the wrong answering category. This led to some unlikely answers, for example persons aged 75 years or older having a parent. Although this is possible, it is also likely that they marked the wrong answer.

Due to some of these shortcomings in the data, two approaches have been used to answer the research question whether the social network influences the application for health care services. A disadvantage of using two approaches is that, although a more satisfying answer could be given, the answer was not all-embracing.

A remark has to be made on the interpretation of the results of the Andersen model. The results of the best explaining group of variables might have been reduced, because the variables included in the predisposing characteristics or enabling resources might had an opposite effect. For example, income had a negative effect on the use of professional home care, while contact with social network members had a positive effect. For this reason, these results should in particular be considered as an indication that not only need, but also other factors influenced the utilization of professional home care and the application for housing adaptations.

Another shortcoming of our study is that only cross-sectional data have been used. So differences in time could not be investigated. For example, the influence on the application for and utilization of health care services after someone lost a partner or when a child moved to another city. Including longitudinal data in a possible next study can contribute to unraveling the specific causes of applying for health care services by physically disabled persons.

A last recommendation for further research is that by comparing data of next AVO studies with our data, it could be studied whether the situation for physically disabled persons changed after the first of January 2007, when the Social Support Act (Wet Maatschappelijke ondersteuning, WMO) came into force.

8. Policy recommendations

A proactive attitude of policymakers is needed to enable persons with a physical disability to apply for professional home care or housing adaptations. This is needed, because a part of these persons want to use these services, but cannot apply for them either due to a lack of knowledge or due to difficulties with submitting an application. Although not all of them may be willing to invest enough time and energy to receive health care services, action is still desirable in order to enable the persons who really want this, to apply for these services.

Firstly, actively spreading information in different ways is needed to reach most of the physically disabled persons. Not only new media channels, such as the internet, but also channels that more appeal to the targeted group must be used, such as leaflets distributed via general practitioners or via personal contact, for example elderly counsellors or patient organisations informing persons on health care services.

Not only the potential users of professional home care or housing adaptations have to be informed, but also their social network members. They need to be well informed to be able to lend support. For this purpose, ways of spreading information that reach a more general public are needed, like an article in a local newspaper, a commercial on the radio, leaflets distributed via a public library or information on the website of a (local) government.

From January 1st 2007, the local governments in the Netherlands became responsible for the professional home care (domestic care) and housing adaptations based on the Social Support Act (Wet Maatschappelijke Ondersteuning, WMO). Consequently, local governments are able to improve the coordination of the application for professional home care and housing adaptations by arranging a so-called 'one stop-shop' in their municipality, where persons can apply for different health care services. Some local governments already did this (De Klerk & Schellingerhout 2006). This will probably reduce the complexity of the application process for physically disabled persons. However, even if there is one place where applications can be submitted to, it is still very important that local governments inform their inhabitants on the application process to ensure that all potential users are aware of this. Local governments even are responsible for providing information on WMO-services and have to arrange enough information channels (WMO).

Next to informing persons, it is also of importance that local governments lend support to persons if they want to submit an application, if social network members are not present or not able to lend support, because some of the physically disabled are not able to submit an application by themselves. Volunteers can be asked to assist physically disabled persons with filling in application forms or a 'consulting hour' can be arranged at the municipality for questions on applying for health care services.

In addition, it is desirable to aim the needed 'information and support' policies at specific groups, like persons with a low educational level or elderly, to reduce the inequality in the application for housing adaptations and the utilization of professional home care.

Although more information and support received when submitting an application is desirable, not all local governments will probably be enthusiastic to arrange this. Local governments face a dilemma: on the one side they have to inform their inhabitants on WMO-services, but on the other side they have to deal with the costs of increased use of WMO-services if more persons submit an application. Although more awareness and lending support is not directly favouring the local governments from a financial perspective, it is still desirable from a societal perspective. Professional home care and housing adaptations will contribute to physically disabled persons living longer independently in their own houses and less health care costs due to a reduced need for much more expensive intramural care, such as a nursing home.

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Appendix A

Questionnaire

B MEDIA

B8. Do you use a computer at home?

Yes

No (CONTINUE WITH QUESTION B10)

B9. What activities do you perform on the computer at home and how often?

Computers for playing games are not included.

	NEVER	ONCE A MONTH OR LESS	ONCE A WEEK OR SEVERAL TIMES A MONTH	DAILY OR SEVERAL TIMES A WEEK
Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

N NEED FOR CARE

N11i.

Paying bills, filling in forms etc.....:

I can do this without difficulty

I can only do this with difficulty.....

I cannot, due to my health status

I cannot, due to other reasons

O ASSISTANCE

O4.

Which family members live nearby (less than 30 minutes travelling)?

SEVERAL ANSWERS POSSIBLE

Grandparent(s)

Parent(s)

Child(ren)

Sister(s)/brother(s)

None of these family members

G LIVING ACCOMODATION

G3a.

Would you like to have (other) adaptations in your house to cope with your physical disability?

Yes	1	
No	2	→ CONTINUE WITH QUESTION G4a

G3c. Why do you not have these adaptations?
SEVERAL ANSWERS POSSIBLE

I do not know how to arrange adaptations	1
I cannot afford adaptations	2
The landlord does not co-operate	3
I was not considered eligible to use adaptations (for example by Wvg, RIO)	4
Other reasons:	5

*Wvg= Services for the Disabled Act; RIO= Needs Assessment Agency

G4a.

Did you (or someone on behalf of you) applied for a housing adaptation of the Wvg (usually at the local government) *during the past five years*?

Yes	1	
No	2	→ CONTINUE WITH QUESTION H1a

H
PROFESSIONAL
HOME CARE

H1a.

Did you/your household received professional home care *during the past twelve months*?

- Yes 1
No 2 → **CONTINUE WITH QUESTION H5a**
-

H5a.

Do you need professional home care or more professional home care? If so, did you (or someone on behalf of you) applied for this care *during the past twelve months*?

- Yes, I have also applied for 1
Yes, I have not applied for 2 → **CONTINUE WITH QUESTION H5c**
No 3 → **CONTINUE WITH QUESTION I1**
-

H5c.

Why did you not submit an application (or someone on behalf of you)?

- I do not know how or where I can submit an application 1
I expect not to be considered as eligible 2
I think I cannot afford it 3
It is useless, due to supply restrictions 4
I do not want strangers in my house 5
Other reasons: 6
- } **CONTINUE WITH QUESTION I1**

L SOCIAL CONTACT

L2.

The following questions concern social contact, including face-to-face, written, telephone and email contact.

Please mention how often you have contact with:

	once a week or more often	once per two weeks	once a month	less than once a month	rarely of never	not applicable
a. your child(ren)	1	2	3	4	5	6
b. your parent(s)	1	2	3	4	5	6
c. your other family member(s)	1	2	3	4	5	6
d. your friend(s) or close relative(s)	1	2	3	4	5	6
e. your neighbour(s)	1	2	3	4	5	6

M ARRANGING/EMPOWERMENT

When persons have a disability they often have to arrange services or care. The following questions deal with this matter.

M1.

Please mention if you agree or disagree with the following statements:

	totally agree	agree	agree nor disagree	disagree	totally disagree
d. When searching for the most appropriate services there is nobody who can give advise.	1	2	3	4	5
e. I always search for information on the product or services I need.	1	2	3	4	5
k. I shy away when I need new services or help.	1	2	3	4	5

M2.

Do you usually arrange things related to your illness or disability or do you receive support of others with this activity?

Yes, I always do this

1 → **CONTINUE WITH QUESTION M5a**

Sometimes I receive support

2

Usually I receive support

3

M3.

Please indicate why you receive support with this.

SEVERAL ANSWERS POSSIBLE

I do not know how to arrange it..... 1

I do not have energy to do it 2

I have difficulty with writing or telephoning..... 3

I do not have access to e-mail or internet..... 4

Other reasons 5

M4.

Please indicate from who you receive most of the support.

SEVERAL ANSWERS POSSIBLE

Partner.....1

Child or parent(s).....

Other family member(s) 3

Friend(s) or close relative(s) 4

Social/welfare work..... 5

The authority to which the application must be submitted to, for example RIO or local government6

Health care professionals, such as a general practitioner or professional home care..... 7

Others..... 8

Appendix B

Tables bivariate analyses and multivariate logistic analyses

Table B2: Physically disabled persons searching for information on health care services according to background characteristics (percentages have been horizontally presented, n=609)

	agree	neutral	disagree	sign.
highest level of completed education				*
<lbo (low)	61.8	16.4	21.8	
mavo/havo/vwo/mbo (medium)	73.7	13.7	12.6	
hbo/wo (high)	76.3	9.2	14.5	
total	68.6	13.2	18.2	
(n)	(389)	(75)	(103)	
estimated absolute n ^a	1,000,000	200,000	300,000	

* p<0.05. Chi² test

^a The absolute numbers have been derived from a small number of respondents, therefore this estimation is less accurate.

Source: SCP (AVO Gehandicaptent'04/AVO'03)

Table B3: Physically disabled persons using internet according to background characteristics (percentages have been horizontally presented, n=1476)

	daily or a few times a week	once a week or several times a month	never or rarely	sign.
age group				***
18-34 years	50.9	19.8	29.3	
35-54 years	33.9	12.9	53.2	
55-74 years	10.1	9.2	80.8	
75 ≥ years	2.5	0.9	96.5	
gender				***
men	21.2	9.3	69.6	
women	14.8	8.1	77.1	
highest level of completed education				***
<lbo (low)	10.5	4.5	85.0	
mavo/havo/vwo/mbo (medium)	24.2	12.8	62.9	
hbo/wo (high)	37.2	19.9	42.9	
standardised net monthly household income				***
<1200 euro	12.1	5.3	82.6	
1200-<2000 euro	18.8	9.8	71.5	
2000-<3000 euro	28.1	18.7	53.2	
3000 euro and higher	40.0	12.7	47.3	
physical disability				***
moderate physical disability	19.0	9.7	71.3	
severe physical disability	11.2	5.1	83.7	
total	17.1	8.5	74.4	
(n)	(252)	(126)	(1098)	
estimated absolute n	300,000	100,000	1,000,000	

*** p<0.001. Chi² test
Source: SCP (AVO'03)

Table B4: Physically disabled persons shying away from submitting an application according to background characteristics (percentages have been horizontally presented, n=608)

	agree	neither agree nor disagree	disagree	sign.
age group				*
18-34 years	58.1	25.6	16.3	
35-54 years	58.4	14.4	27.3	
55-74 years	69.0	12.4	18.6	
75 ≥ years	55.1	16.2	28.6	
physical disability				*
moderate physical disability	61.0	17.3	21.6	
severe physical disability	62.2	9.1	28.7	
total	61.4	15.1	23.5	
(n)	(373)	(92)	(143)	
estimated absolute n ^a	900,000	200,000	400,000	

*p<0.05. Chi² test

^a The absolute numbers have been derived from a small number of respondents, therefore this estimation is less accurate.

Source: SCP (AVO Gehandicaptent'04-AVO'03)

Table B5: Physically disabled persons performing simple administrative work according to background characteristics (percentages have been horizontally presented, n=1534)

	without difficulty	with difficulty	not possible due to health status	not possible, due to other reasons	sign.
age group					***
18-34 years	70.2	16.5	5.0	8.3	
35-54 years	77.7	16.5	1.8	3.9	
55-74 years	71.6	17.2	4.3	7.0	
75 ≥ years	56.3	18.9	11.8	13.0	
highest level of completed education					***
<lbo (low)	59.7	21.4	8.5	10.5	
mavo/havo/vwo/mbo (medium)	79.3	13.1	3.1	4.5	
hbo/wo (high)	90.2	4.3	1.8	3.7	
standardised net monthly household income					***
<1200 euro	62.0	20.4	7.9	9.8	
1200-<2000 euro	75.5	14.2	3.9	6.4	
2000-<3000 euro	82.6	9.7	2.1	5.6	
3000 euro and higher	84.6	9.2	1.5	4.6	
physical disability					***
moderate physical disability	76.4	15.5	1.7	6.4	
severe physical disability	45.4	23.1	18.5	13.1	
total	68.6	17.4	5.9	8.1	
(n)	(1049)	(267)	(91)	(123)	
estimated absolute n	1,000,000	300,000	100,000	100,000	

***p<0.001. Chi² test
Source: SCP (AVO'03)

Tabel B7: Physically disabled persons receiving support when submitting an application for health care services according to background characteristics (percentages have been horizontally presented, n=618)

	no support	sometimes support	mostly support	sign.
age group				***
18-34 years	67.4	23.3	9.3	
35-54 years	75.8	17.0	7.2	
55-74 years	73.4	10.5	16.2	
≥ 75 years	55.9	22.3	21.8	
highest level of completed education				***
<lbo (low)	59.0	20.7	20.4	
mavo/havo/vwo/mbo (medium)	77.1	13.1	9.7	
hbo/wo (high)	85.1	10.8	4.1	
standardised net monthly household income				*
<1200 euro	61.4	19.3	19.3	
1200-<2000 euro	71.1	15.7	13.2	
2000-<3000 euro	75.4	16.9	7.7	
≥ 3000 euro	88.5	3.8	7.7	
physical disability				***
moderate physical disability	72.9	15.6	11.6	
severe physical disability	54.5	20.0	25.5	
relationship				*(p=0,10)
partner	71.0	14.1	15.0	
without partner	64.0	20.4	15.6	
family (in the first degree)				*(p=0,09)
family	67.5	16.4	16.1	
no family	75.9	19.0	5.2	
total	68.0	16.8	15.3	
(n)	(418)	(103)	(94)	
estimated absolute n	1,000,000	300,000	200,000	

* p<0,05, *** p<0,001, Chi² test

Source: SCP (AVO'03-AVO Gehandicaptent'04)

Tabel B8: Reasons for receiving support when submitting an application for health care services of physically disabled persons who receive support according to background characteristics (only for first reason) (percentages have been horizontally presented, n=179)

	yes	no	sign.
<u>lack of knowledge</u>			
age group			*
18-34 years	42.9	57.1	
35-54 years	34.2	65.8	
55-74 years	43.5	56.5	
≥ 75 years	61.4	38.6	
relationship			**
partner	38.8	61.2	
without partner	60.2	38.9	
total	49.3	50.7	
(n)	(97)	(100)	
estimated absolute n	800,000	800,000	
<u>other reasons for receiving support</u>			
lack of energy	24.5	75.5	
difficulty with writing/calling	15.3	84.7	
lack of access to email/internet	8.6	91.4	
other (not known)	31.7	68.3	

* p<0,05, * p<0,01, Chi² test

Source: SCP (AVO'03-AVO Gehandicaptent'04)

Table B9: Physically disabled persons receiving support of their child(ren) or parent(s) when submitting an application for health care services according to background characteristics (percentages have been horizontally presented, n=197)

	yes, receives this	no, does not receive this	sign.
age group			***
18-34 years	50.0	50.0	
35-54 years	21.1	78.9	
55-74 years	41.0	59.0	
75 ≥ years	65.1	34.9	
gender			*
men	37.1	62.9	
women	53.3	46.7	
relationship			***
partner	30.3	69.7	
without partner	66.3	33.7	
family (in the first degree)			***
family	51.7	48.3	
no family	0.0	100.0	
frequency contact family (in the first degree)			***
often contact	58.3	41.7	
regular contact	22.2	77.8	
rarely or never contact	9.1	90.9	
travel time to family (in the first degree)			**
< 30 minutes travelling	54.6	45.4	
> 30 minutes travelling	28.6	71.4	
total	48.2	51.8	
(n)	(95)	(102)	
estimated absolute n ^a	200,000	300,000	

p<0.05. ** p<0.01.*** p<0.001 Chi² test

^a The absolute numbers have been derived from a small number of respondents, therefore this estimation is less accurate.

Source: SCP (AVO Gehandicapten'04-AVO'03)

Table B10: Physically disabled persons receiving support of their partner when submitting an application for health care services according to background characteristic (percentages have been horizontally presented, n=197)

	yes, receives this	no, does not receive this	sign.
age group			***
18-34 years	21.4	78.6	
35-54 years	47.4	52.6	
55-74 years	61.3	38.7	
75 ≥ years	16.9	83.1	
gender			* p=(0.06)
men	46.8	53.2	
women	32.8	67.2	
relationship			***
partner	70.4	29.6	
without partner	4.0	96.0	
total	37.1	62.9	
(n)	(73)	(124)	
estimated absolute n ^a	200,000	300,000	

* p<0.05. ***p<0.001 Chi² test

^a The absolute numbers have been derived from a small number of respondents, therefore this estimation is less accurate.

Source: SCP (AVO Gehandicaptēn'04-AVO'03)

Table B11: Physically disabled persons missing a person who is able to lend support when submitting an application for health care services according to background characteristics (percentages have been horizontally presented, n=618)

	agree	neither agree, nor disagree	disagree	sign.
age group				*
18-34 years	27.9	27.9	44.2	
35-54 years	24.7	20.8	54.5	
55-74 years	26.7	20.4	52.9	
≥ 75 years	16.6	15.0	68.4	
relationship				* (p=0,10)
partner	27.3	17.5	55.3	
without partner	19.9	20.8	59.2	
total	23.2	19.2	57.6	
(n)	(142)	(117)	(351)	
estimated absolute n	400,000	300,000	900,000	

* p<0,05, Chi² test

Source: SCP (AVO'03-AVO Gehandicaptēn'04)

Table B12: Physically disabled persons with a subjective need for professional home care submitting an application for professional home care according to background characteristics (percentages have been horizontally presented, n=80)

	submitted an application	not submitted an application	sign.
physical disability			**
moderate physical disability	25.9	74.1	
severe physical disability	63.6	36.4	
total	36.0	64.0	
(n)	(29)	(51)	
estimated absolute n	70,000	100,000	

** p<0.01

Source: SCP (AVO Gehandicaptten-AVO'03)

Table B13: Physically disabled persons using professional home care according to background characteristics (percentages have been horizontally presented, n =618, n single persons=272)

	utilization	non-utilization	sign.
age group			*** / ***
18-34 years	7.0 / 9.5	93.0 / 90.5	
35-54 years	16.7 / 21.3	83.3 / 78.7	
55-74 years	26.0 / 42.7	74.0 / 57.3	
≥ 75 jaar years	61.5 / 65.6	38.5 / 34.4	
gender			*** / **
men	22.1 / 30.7	77.9 / 69.3	
women	39.3 / 52.8	60.7 / 47.2	
highest level of completed education			* / *
<lbo (low)	36.9 / 53.2	63.1 / 46.8	
mavo/havo/vwo/mbo (medium)	26.1 / 34.8	73.9 / 65.2	
hbo/wo (high)	28.0 / 37.5	72.0 / 62.5	
standardised net monthly household income			**
<1200 euro	38.1	61.9	
1200-<2000 euro	34.8	65.2	
2000-<3000 euro	22.7	77.3	
≥ 3000 euro	11.5	88.5	
physical disability			***
moderate physical disability	25.8 / 39.2	74.2 / 60.8	
severe physical disability	53.4 / 68.0	46.6 / 32.0	
relationship			***
partner	21.9	78.1	
without partner	46.9	53.1	
family (in the first degree)			* (p=0.10)
family	48.7	51.3	
no family	34.2	65.8	
total	33.1/ 53.1	66.9 / 46.9	
(n)	(204)	(412)	
estimated absolute n	500,000	1,000,000	

* p<0.05. ** p<0.01.*** p<0.001 Chi² test

percentages of single persons are presented in bold (only significant, or near significant results are presented)

Source: SCP (AVO Gehandicaptten-AVO'03)

Table B14: Physically disabled persons with a subjective need for housing adaptations submitting an application for housing adaptations according to background characteristics (percentages have been horizontally presented, n=175, n single persons=71)

	submitted an application	not submitted an application	sign.
age group ^a			* (p=0.06)
18-34 years	20.0	80.0	
35-54 years	30.8	69.2	
55-74 years	27.4	72.6	
≥ 75 years	48.1	51.9	
gender ^a			* (p=0.10)
men	42.1	57.9	
women	29.7	70.3	
highest level of completed education ^a			**
≤lbo (low)	43.4	56.6	
mavo/havo/vwo/mbo (medium)	18.8	81.3	
hbo/wo (high)	18.8	81.3	
physical disability			*/ * (p=0.05)
moderate physical disability	28.4/ 31.4	71.6/ 68.6	
severe physical disability	44.1/ 23.8	55.9/ 76.2	
travel time to family (in the first degree)			* (p=0.05)
<30 minutes travelling	35.3	64.7	
>30 minutes travelling	11.1	88.9	
total	33.7	66.3	
(n)	59	116	
estimated absolute n	200,000	300,000	

* p<0.05. Chi² test

Percentages of single persons are in bold (only significant, or near significant results are presented)

^a These associations could not be tested for single persons due to a small number of respondents

Source: SCP (AVO Gehandicaptent-AVO'03)

Table B15a: Physically disabled persons with a subjective need for housing adaptations submitting an application for housing adaptations according to background characteristics (in odds ratios, only significant odds ratios ($p < 0.05$) have been presented, $n=185$)

	application for housing adaptations
age group	
18-34 years (compared to ≥ 75 years)	n.s.
35-54 years (compared to ≥ 75 years)	n.s.
55-74 years (compared to ≥ 75 years)	0.46 ($p=0.07$)
gender	
women (compared to men)	n.s.
highest level of completed education	
low (compared to high)	n.s.
medium (compared to hoog)	n.s.
standardised net monthly household income	
<1200 euro (compared to ≥ 3000 euro)	n.s.
1200-2000 euro (compared to ≥ 3000 euro)	n.s.
2000-3000 euro (compared to ≥ 3000 euro)	n.s.
physical disability	
moderate physical disability (compared to severe physical disability)	n.s.
shy away from troubles of submitting an application	
neither agree nor disagrees (compared to agree)	n.s.
disagree (compared to agree)	2.04 ($p=0.08$)
R² (Nagelkerke) in %	22

Source: SCP (AVO Gehandicapten'04-AVO'03)

Table B15b: Physically disabled persons using professional home care according to background characteristics (in odds ratios, only significant odds ratios ($p < 0.05$) have been presented, $n=635$)

	use of professional home care
age group	
18-34 years (compared to ≥ 75 years)	0.06
35-54 years (compared to ≥ 75 years)	0.14
55-74 years (compared to ≥ 75 years)	0.23
gender	
women (compared to men)	2.091
highest level of completed education	
low (compared to high)	0.56 ($p=0.06$)
medium (compared to high)	0.52
standardised net monthly household income	
<1200 euro (compared to ≥ 3000 euro)	5.86
1200-2000 euro (compared to ≥ 3000 euro)	5.70
2000-3000 euro (compared to ≥ 3000 euro)	n.s.
physical disability	
moderate physical disability (compared to severe physical disability)	0.40
shy away from troubles of submitting an application	
neither agree nor disagrees (compared to agree)	n.s.
disagree (compared to agree)	1.80
R² (Nagelkerke) in %	29

Source: SCP (AVO Gehandicaptent'04-AVO'03)

Table B16: Frequency table on physically disabled persons (who have a subjective need for the mentioned health care services) not applying for professional home care or housing adaptations, because of lack of knowledge on the application procedure (n professional home care=49, n housing adaptations= 176)

	lack of knowledge	other reasons for not applying
professional home care		
total	16.7	83.3
(n)	(8)	(40)
estimated absolute(n)	200,000	1,300,000
housing adaptations		
total	12.8	87.2
(n)	(22)	(154)
estimated absolute n	300,000	1,000,000

^a the respondent numbers are sometimes very small here, especially for professional home care. Therefore the results will be less accurate.
Source: SCP (AVO Gehandicaptent'04)